AUGUST, 1959

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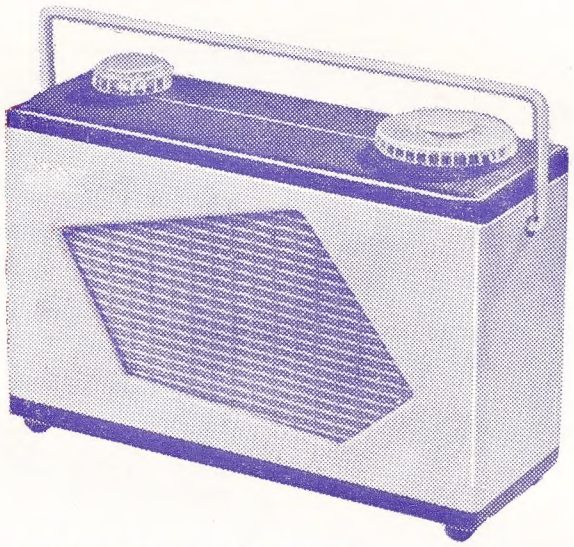

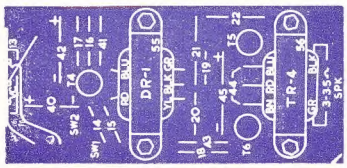

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EDITORIAL

★

PROSPECTS FOR GENEVA

If the current international conferences do not wreck plans for the I.T.U., I will, by the time you read this, be on my way to Geneva together with other members of the Australian Delegation.

The fact that I am writing this in mid July makes it difficult to forecast what will happen there, but I think the picture is clear enough to estimate what our initial position is likely to be.

The International proposals as received were too incomplete to make any classification worth while, but certain trends are clear.

Neither the United Kingdom nor the U.S.A. are proposing to cut Amateur bands. The U.S.A. is actively opposed to losing frequencies especially to short wave broadcasting.

Its attitude is bound to carry great weight, particularly as it now has direct interests in Region 3.

In Europe there is a clear pattern to curb some Amateur activity for Region 1, and this is repeated in countries such as India, so strangely included in Region 3.

There is little doubt about the general pressure for frequency accommodation, so much so that some have suggested it would be easier to leave the high frequency allocations as they are now than to attempt any serious changes.

But to us, it is of more immediate interest to consider what took place at my first meeting with the Australian delegation in Melbourne a few days ago.

Here I was given a warm welcome, and an excellent hearing during discussions occupying almost a full day.

As I expected, none of the Australian proposals have been amended, but there are still so many from elsewhere which have yet to be tabled at Geneva that the real battles will take place there. And believe me they will not all concern the Amateurs!

Many countries are suggesting cuts to the 3.5 Mc. band—India nominates only 10 Kc. for Amateurs—and we may not succeed in holding our present allotment. But we must remember that, whereas at the moment we share the band with other services, the proposed 200 Kc. will be exclusive, and this has many advantages.

I hold considerable hope that the Conference will accept my suggestion for daylight sharing of the band between 7.1 and 7.3 Mc. in addition to the exclusive allocation 7-7.1 Mc. Let's face it—legal and illegal s.w. broadcast interference renders our full band almost useless at night, but with the exception of a few Australian stations which might start up there, it will be virtually unoccupied in this area during the day. The P.M.G. Department is apprehensive about how it will work, but I see no more problems than exist now in the shared 50 Kc. portion, where interference by Amateurs is unknown.

However, the delegates agreed to annotate this proposal for further consideration at Geneva, and if we all hammer this one, despite its novelty, I think we can get it. If so, it will be of enormous value to us.

Another annotation concerns a firm Amateur allocation in the 3900 Mc. band from which originally we were excluded. Otherwise, apart from some movement in the u.h.f. bands, halving the 56 Mc. band and sharing the wide bands above 1200 Mc., now nominally Amateur, with radio navigation, the allocations are likely to stay as they are.

There is so little support for reducing the 14 Mc. band that I doubt whether it will pass through at Geneva. American objections alone are likely to be so strong that it could well be abandoned.

Although for the reasons given above I am more hopeful than I was a few months ago; I am not underestimating the difficulties yet to be faced, but I know, too, that we will have friends at Geneva to help withstand the pressures we will meet there.

Be assured I will do all I can to justify your confidence in me, and the magnificent support you have shown by your many efforts to protect our bands and our future.

—JOHN MOYLE, VK2JU, W.I.A. Representative at the I.T.U. Conference.

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Tropospheric Propagation at V.H.F.

PART ONE

ALAN ELLIOTT,* VK3AEL

THE newcomer to the v.h.f. bands soon discovers that DX contacts are persued as avidly on these frequencies as on the "DC" bands. On 144 Mc. and higher the meaning of DX in terms of distance is different, but the pleasure and interest of working stations beyond the normal range is one of the attractions of v.h.f. The normal range, that is the radius of communication at times when the band is said to be "dead", depends mainly on the location of the station, antenna gain, power in the antenna and noise figure of the receiver. With modern gear and a reasonable location this radius could be up to 100 miles.

However, it will be observed that there are many occasions, particularly during the summer and autumn, when signals from far beyond the normal range are audible at excellent strength. Reflection by the ionosphere at frequencies over 100 Mc. is very rare, so how does this come about? The answer almost always is refraction in the lower atmosphere, called the troposphere.

This article is an attempt to explain in qualitative terms, mainly for those who are just starting to take an interest in the one and two metre bands, how such refraction may arise. During World War II. the unexpected radar ranges sometimes encountered led to the discovery of the correlation between radio conditions and the weather which had previously been dimly perceived by Amateurs working on 56 and 112 Mc.[9]

From the Amateur viewpoint the classic article by W2BAV in "QST" in 1949 gave v.h.f. enthusiasts the information needed to predict whether an opening might be possible by inspection of the daily weather map.[8] But sometimes the good conditions expected did not materialise and W2OBB demonstrated that insufficient refraction was present as disclosed by radiosonde readings of upper air temperature and water vapour content.[7]

DEFINITIONS

It will be necessary to delve a little into physics and meteorology, so let us start with some definitions.

The Troposphere: In general there is a gradual decrease in temperature with increasing height above ground level averaging about 3 degrees Farenheit per 1,000 feet. At an altitude of about 40,000 feet, the temperature is about 60°F. below zero but above this altitude the temperature ceases to decrease regularly. The atmospheric layer in which the temperature falls with height is called the troposphere and is the layer where nearly all of the conditions controlling the weather are to be found.

Vertical Temperature Gradient: The rate of change of temperature with height is called the vertical temperature gradient or lapse rate. When the lapse rate is less than 3°F. per 1,000 feet, an inversion is considered to exist, even though the upper air temperature may be lower than at ground level.

Adiabatic Temperature Changes: When a gas is allowed to expand by reducing the pressure on it cooling takes place, and similarly when a gas is compressed its temperature rises. These temperature changes which occur without receiving or giving heat to or from the surroundings are called adiabatic temperature changes. The operation of a diesel engine, the heating of the air inside a bicycle pump as it is used and the cooling of air escaping from an inflated balloon are familiar examples.

Mixing Ratio: The moisture content of the atmosphere may be expressed in various ways. The most convenient for our purpose is the weight in grams of water vapour mixed with one kilogram of dry air. This is the mixing ratio.

RADIO REFRACTIVE INDEX

For distances greater than line of sight the radio wave must be bent downwards towards the earth at some point along its path or alternatively the refraction may be gradual and extend over a considerable portion of the path. In either case the wave must encounter a discontinuity or gradient of refractive index such that there is a reduction of refractive index with height. Electromagnetic waves travel faster if the refractive index of the medium is reduced, therefore a wave travelling horizontally in an atmosphere having a negative gradient of refractive index with height will be bent towards the earth as the top of the wave front moves ahead of the lower part. The refractive index of dry air is almost the same for radio waves and light waves and is given by the expression $n-1 = 10^6 \times 79\ (P/T)$ where n is the refractive index, P is the air pressure in millibars, and T is the temperature in degrees absolute. Thus a decrease in P or an increase in T would reduce n.

The refractive index of water vapour, which is always present in the atmosphere, differs for light and radio waves because the water vapour molecule has a dipole moment which varies with frequency. It may be shown that the radio refractive index increases as the water vapour content increases.[1, 2] The total radio refractive index is obtained by adding that due to water vapour to that of dry air. The combined effect of the normal lapse of pressure, temperature and water vapour is such that the R.R.I. falls slowly with height, causing the radio range to be extended to about 20% beyond line of sight in the absence of other effects. With modern gear and reasonable power, this distance is exceeded mainly because of diffraction, reflection and scattering.

DX BY ANOMALOUS PROPAGATION

The gradient of R.R.I. required to cause a ray transmitted horizontally to assume a radius of curvature equal to that of the earth, and the individual changes of temperature pressure and water vapour required to cause it may be calculated.[1, 2] When the gradient of R.R.I. is greater than this, super-refraction is said to occur.

The effect of the vertical gradient of pressure is not negligible, but is too small to cause super-refraction by itself and is almost constant. Thus super-refraction must be caused by an increase in temperature with height or a decrease of water vapour content of sufficient magnitude. An unfavourable lapse rate of temperature may be combined with a very favourable reduction in water content or vice-versa, but in practice it is usually found that favourable gradients of both are present, or that a reduction of mixing ratio alone is the significant factor.

For super-refraction to occur, the minimum rate of temperature rise necessary is about 3°C. per 100 feet.† The minimum rate of decrease in mixing ratio is about 0.5 gram per kilogram per 100 feet.[7] In addition it would seem that the total temperature rise must exceed about 10°C. or the mixing ratio drop more than at total of about 1.5 gram per kilogram for the refraction to be of practical effect for microwaves.[2] Observation has shown that this seems to apply to 144 Mc. also. In other words the discontinuity must extend over a depth of at least 300 feet when the temperature or humidity lapse rate is at the minimum value.

THE WEATHER FROM THE V.H.F. POINT OF VIEW

If there is a condition where a layer of comparatively warm dry air exists over a layer of cooler moist air and where the temperature and water vapour differences are great enough, v.h.f. radio waves may be propagated for several hundreds of miles and the band is "open". Since the writer is not a meteorologist, explanations of the ways in which suitable tropospheric conditions may come about have been based on elementary text books.[3, 4]

Nocturnal Cooling Over Land

Heat from the sun passes through the atmosphere to which it is almost transparent and warms the surface of the earth which in turn warms the air near the surface by contact and convection. At night in the absence of cloud, heat escapes from the earth into space, causing the air close to the surface to be cooled by contact, but the air temperature several hundred feet aloft may not be greatly different from what it was the afternoon before, thus a temperature inversion may exist and will be at a maximum with clear skies and no wind. A cool night following a hot summer day or a clear cold calm winter morning may indicate a band opening. Topographical features restrict the distance which may be covered.

* 31 Fenton Street, Ascot Vale, Vic.

† Gibbs gives 4.5°C. per 100 feet for microwaves.

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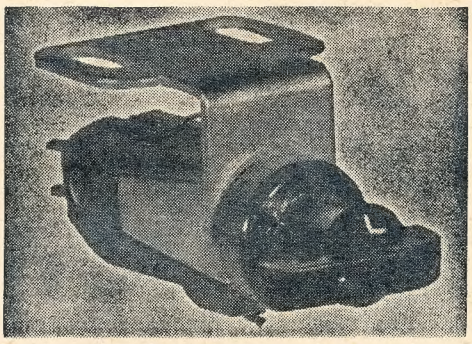

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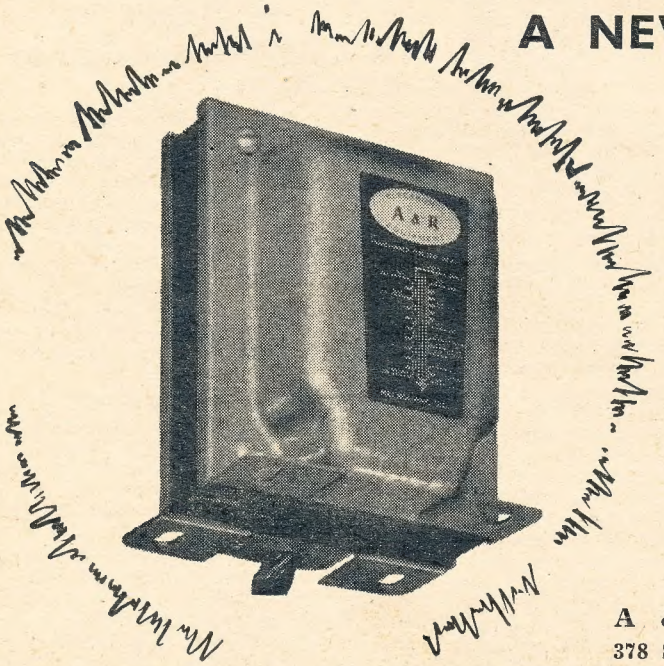

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Advection from Land to Sea

The temperature of the sea does not change greatly from day to night, so the above process is not very marked over the sea. However, the horizontal movement of air (advection) may cause a mass of air warmed by contact with the land to move across the coast over relatively cold water. The lower layer of air is then cooled forming a temperature inversion, and if the air was originally dry evaporation from the sea would cause a drop of water vapour with height to develop as well. The combined effect could result in the formation of a duct in which the wave may be trapped similarly to a wave guide. The shorter the wavelength, the shallower the duct needs to be to contain the wave, therefore band openings by surface ducting should be more frequent on the higher frequency bands.

Coastal Inversion

Coastal inversions may occur in Australia during the warmer months when the land temperature rises considerably above that of the sea. Warm air over the land rises because of its lower density and is replaced by cooler air from the sea. The uplifted air flows across the coast resulting in a cycle of air movement causing a sea breeze with associated temperature inversion (Fig. 1). This effect may be noticed several miles inland.

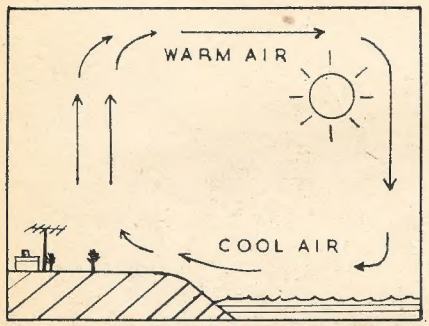
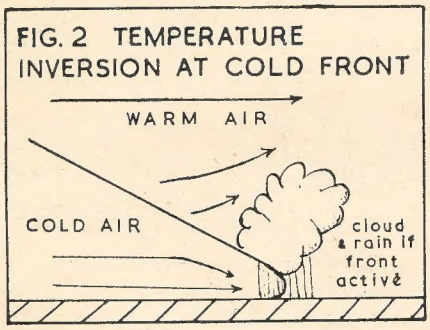


FIG.1 COASTAL INVERSION

Subsidence Inversion

The pressure systems which move across the continent generally from west to east are formed by a complex series of events including the rotation of the earth, the heating effect of the sun, and the presence of land and sea masses. These pressure systems are shown on the weather map as irregularly shaped areas enclosed by lines called isobars, connecting places of equal barometric pressure. Winds are caused by the movement of air from high pressure to low pressure areas, but due to the rotation of the earth and ground friction, the direction of the wind is about 30 degrees from the isobars over land and about 10 degrees over the seat at low altitudes.

Outflow of air near the surface from a high pressure area results in the air above sinking to replace it. As the air sinks it becomes subjected to greater pressure, causing the temperature to rise as it is compressed adiabatically. In the absence of evaporation or condensation the mixing ratio would be unchanged but the vertical gradient of mixing ratio, which usually decreases with height, would be accentuated by the compression. The boundary between the warm air in the "high" and the cooler air in an adjacent "low" is not vertical. There is very little mixing between masses of air at different temperatures, thus the warm air tends to spread out over the denser cooler air around the edge of the "high" which may produce a strong inversion of temperature or mixing ratio, or both. Over the sea, subsidence may cause ducting when evaporation increases the water vapour lapse in the lower layers. Subsidence is the most frequent single cause of super-refraction, at least in southern Australia. A diagrammic representation of a cross section through a "high" is given in Fig. 3.



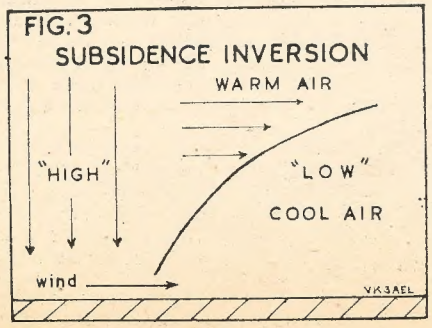
Cold Fronts

If a mass of air warmed by travelling over land for some time in summer is followed by a mass of air cooled by contact with a southern ocean, the boundary at ground level may be sharply defined. The cold air forms a wedge under the warm air with a slope of about 1 in 100, producing a temperature inversion and possibly a reduction in water vapour content. Squalls and thunderstorms are associated with an active cold front and the augury for DX is poor. However, it sometimes happens that the warm air forced aloft by the cold wedge is very dry so the front will pass over without any rain or even without cloud (Fig. 2).

It has been noticed that a weak cold front of this type between two high pressure areas will sometimes cause the band to open, particularly along a line almost parallel to the front shortly after it has passed over one or both stations. Cold fronts are shown on the weather map as thick lines with spikes pointing in the direction of travel. Warm fronts may also exhibit inversion, but are comparatively rare in Australia.

To sum up, the conditions which may indicate a band opening may be as follows:—

1. A cold calm night following a warm day.
2. At the edge of a high pressure area. It has been found that the trailing edge is usually, but not exclusively, more likely to be favorable (i.e. falling barometer), particularly if the trailing edge is very extended. There have been so many exceptions to the "along the isobars" theory that it is not of much help.
3. Paths across elongated "highs" or islands of "highs". Paths inside a large "high" are usually not good.
4. Ducting over the sea.
5. Paths nearly parallel to a cold front shortly after a cool change without rain, particularly when the front is between two "highs". Observations in Victoria have shown that paths crossing a cold front at right angles are usually poor.
6. In general, the presence of a low pressure area will be associated with a "dead" band. If the barometer is high and steady, conditions may not be much above average, but look for DX when the barometer is rising or falling as a "high" crosses your station. If the centre of the "high" passes to the north or south, the barometer may be almost steady and not very high (say between 29 and 30 inches) but the band may be open.



Conclusion

By watching your barometer and the weather maps in the daily paper you will be warned in advance of possible openings. Good conditions are not confined solely to the warmer months—many good openings have occurred in winter.

Typical weather maps illustrating the more frequent types of band openings with tracings of radiosonde charts giving curves of temperature and water vapour in the upper air on those days will be given in Part Two.

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HI-FIDELITY FESTIVAL RESULTS

In conjunction with Melbourne's recent Hi-Fidelity Festival in aid of the Alfred Hospital Building Appeal, J. H. Magrath & Co. Pty. Ltd. arranged a special Hi-Fi Competition for home constructors of Amplifiers.

The judge unanimously awarded an outright prize of £20 to Mr. J. E. Fitzgerald, 71 Bellett St., Camberwell, Vic., after the "Stereorama" Concert at the Melbourne Town Hall on Friday evening, June 12, and the winner was congratulated on his craftsmanship and the meticulous quality of his entry.

OUR HOBBY ON DISPLAY

Background of Student-to-Student Amateur Radio Contact from Morwell High School (Vic.) through VK3BB on 7th and 8th May, 1959

When the Advisory Council of the Morwell High School (94 miles south east of Melbourne) decided to conduct a Fair on Friday, 8th May, to raise funds, it was agreed that educational features as well as the usual money-raising ones should be included.

Mr. H. S. Lazarus, the President of Morwell Chamber of Commerce and a member of the Advisory Council, asked Mr. A. E. (Bert) Budge (VK3BB) whether he could do anything to help on Fair Day. Bert suggested that he could shift his station to the School for the day, and that it might be possible to arrange for a student-to-student contact.

Mr. Budge and the Headmaster of the School (Mr. A. H. Morris) made an official approach to the Postmaster General's Department for permission to operate from Morwell High School, and for a special call sign for the occasion. The P.M.G. was also asked to lend an AR-88 receiver, a specially selective one, and to give technical assistance before and on the day, if such were necessary.

Official permission was granted for VK3BB to be operated from the School from April 24 to May 9 inclusive, after certain safeguards were agreed to by Bert VK3BB and the Headmaster. No special call sign was granted, but the words "operating from Morwell High School" were to be added after VK3BB. An AR-88 receiver was also made available. Mr. C. Manning, Radio Inspection Branch, visited the School and assisted throughout all the proceedings on May 8.

The School received wonderful co-operation from the State Electricity Commission officers in Morwell, who erected two 50 ft. poles, as well as the Lazy H antenna which was beamed on the United States of America.

In the meantime, Bert VK3BB wrote to Mr. Perry Williams, Assistant Secretary of the A.R.R.L. (W1UED), in West Hartford, Connecticut, U.S.A., outlining his hopes for a student-to-student contact and asking for help from the States. The A.R.R.L. offered all assistance, and several letters were written on each side discussing details.

Working independently whilst waiting for A.R.R.L. replies, Bert VK3BB, during long hours at the High School, succeeded in making many contacts in various countries, and explained the idea. The co-operation received was excellent from the following stations, which did not, for one reason or another, take part in the actual proceedings on Fair Day:

W9WE, W9YRO, W9HRV, W9RNK, K6TCZ, K6SSA, K6BAH, K5OSH, W1BEQ, W1BCR, W1ONK, W2MI, W4APS, ZL3FM, ZL3GG, ZL3VI, ZL3US, ZL2AIX, KH6DEU, VR2CC, G3JAF, VP8UL and KC4USK.

None of the stations arranged for us by the A.R.R.L. were contacted. This was unfortunate, as we have no doubt of the interest of the stations concerned. We looked for W1NFT, W6UED, KH6IJ several times, and cabled these stations for schedules, all unsuccessfully. The vagaries of radio contact were to blame.

A very exciting cable on Fair Day eve came from Mr. Perry Williams of the A.R.R.L., as follows: "Look for W1AW 21330 Kc. 0230-0315 GMT May 8. Parker and group will be on hand. 73 Williams." Mr. Parker is the President of the West Hartford Club, made up of High School students.

At Morwell High School, staff and about 24 students went into training on microphone technique and prepared a series of questions for the day. These questions were airmailed to many of the stations named above to facilitate their preparations. Answers were also prepared at Morwell for our own use in reply.

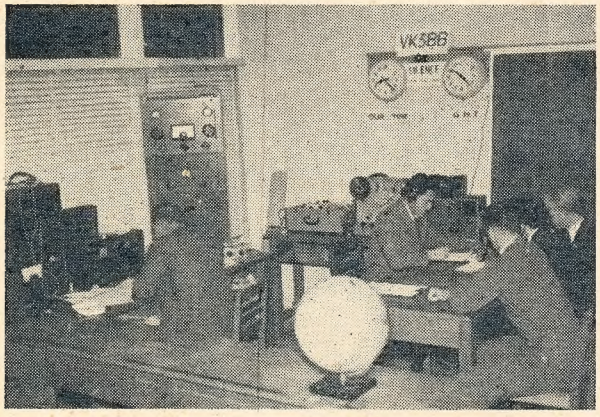
The support of radio, television and the press in Victoria was very gratifying. Commercial radio stations 3UL Warragul and 3TR Sale, and the Australian Broadcasting Commission's Regional Station 3GI, also at Sale, gave us excellent advance publicity, as well as on the day. The Morwell "Advertiser" deserves our special thanks too for the excellent cover the project was given from its inception. The story was carried also by the Melbourne "Age," "Sun" and "Herald" and over the Victorian A.B.C. radio news.

Victorain television station ABV2 (A.B.C.) asked whether we could put on the show a day early, on Thursday, May 7, so that a film could be taken and shown over t.v. on the Friday of the Fair. Naturally, we accepted the suggestion, although it meant last minute changes in the schedules arranged. Several stations were asked to come on for both days.

Unfortunately for our plans, ZL3FM (Christchurch, N.Z.) informed us on the Wednesday that the Radio Inspection Branch there would not allow the student-to-student broadcast, so we reluctantly had to drop ZL3FM and several other ZL stations interested from the scheme. Similar news came to us from G3JAF (Hants, U.K.).

A further setback came on television day—the Thursday. At 9.30 a.m. VR2DO cabled as follows: "Regret authorities disallow student participation". Actually, Suva was timed to come in for television at 6.0 p.m. E.A.S.T. with two boys from Suva Boys' Grammar and two girls from Suva Girls' Grammar School. We cabled back instantly for VR2DO to keep the schedule and to ask and answer questions himself, if necessary. Mr. Lazarus, President of the Morwell Chamber of Commerce, then rang Canberra and was in touch with the Trade Commissioners for New Zealand and for the United Kingdom. Attempts were made at that late hour to overcome the difficulty, but unsuccessfully, due, we feel sure, to lack of time. Had we made earlier approaches to the correct authorities, we feel we would have had 100 per cent. co-operation for all countries concerned. The lack of such an approach must be put down to our inexperience.

On the Thursday, May 7, we had several stations standing by on schedule, notably K9PTQ, with students from New Trier High School, Winnetka, Ill.; K6BAH, Uplands, Calif., with students



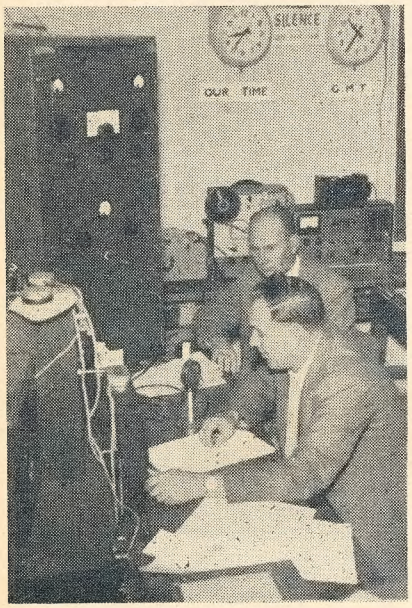
Left: Three students and a staff member are at the table with the second microphone.

Right: A section of the crowd, at 10 p.m. on May 8 (while in contact with W4AHK and W4APS), is typical of the interest shown throughout the day.

from Pomona High School; G3JAF, Hants, England (no students); VR2DO, Suva (no students); W4AHK, Florida, with students from Eustis High School; and W4APS, Georgia.

Reception conditions on that day were far from good, but excellent contact was made with Suva and with Florida and Georgia. The television film (sound) was, under the circumstances, quite good. The next day, Fair Day, gave us excellent reception—too late for t.v.

First class contact was made with K9TPQ with whom a long student-to-student contact was made—for one hour. Other equally good contacts were VR2AS (Suva) for half an hour, and W4AHK, with W4APS standing by, for one hour and twenty minutes.



Bert Budge, VK3BB (in front), and Gordon Morrison, VK3TH (at rear) at the controls of VK3BB/P.

The public interest in the Radio Room at Morwell High School for the fortnight that VK3BB operated there was intense. On the actual Fair Day, large crowds were in the room over a period of many hours. Participating students at Morwell maintained their own interest throughout, and obviously were delighted at being able to share in what was for them a rich experience.

One result of the experiment is that Morwell High School intends to set up its own Amateur Radio Station when members of staff obtain their licence. Also, special QSL cards with photographs of the proceedings and of the School and district are to be sent to those Amateurs who helped.

Bert VK3BB wishes to thank all Amateurs who assisted him in any way, and particularly those who had repeated schedules with him. His thanks go, too, to the students of participating Schools.

The Headmaster of the Morwell High School, Mr. Allan Morris, also thanks them all, and also Mr. Budge, for a wonderful example of international co-operation in an unusual educational experiment. All at Morwell High School have no doubt as to its success.

A. E. BUDGE, VK3BB.
A. H. Morris, Headmaster.

PAINLESS NOISE LIMITING FOR 13/6

GEORGE H. CRANBY,* VK7GC

THE other night I was sitting in front of my modulator trying to make the speech clipper behave. At the same time I had the receiver running, enjoying some juicy QRN on 40 metres. Suddenly a thought struck me, and out came the speech clipper circuit diagram, paper and pencil. It all looked so simple—it was just too silly!

A little discussion next morning with Bill VK7MC convinced me that it was not so silly, really, and the same night an half hour (yes, half-an-hour) of work proved the pudding. It works, and it works that-away:

It's the old shunt diode limiter, used in the audio stage with variable blocking bias. As can be seen, a reference voltage is taken from the joint between the two 20K resistors (they can be 22K, or anything thereabouts) to a d.c.-blocked section of the audio input line. A dropping resistor is inserted also.

Positive peak clipping is provided by the l.h. diode which has positive bias with respect to reference; the second diode clips negative peaks, the cathode being connected to reference, and the plate to earth; earth being negative to reference.

The variable blocking voltage is derived from the cathode bias resistor of the audio output stage, the resistor actually being a potentiometer of appropriate value.

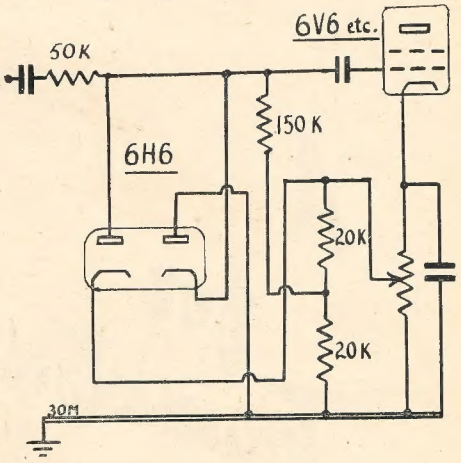
That's all there is to it, chaps. With the potentiometer slider in top position, and with 12 volts total bias, there is 6 volts bias on the clipper cathodes and clipping starts when the peak audio amplitude exceeds 6 volts. As the slider comes down towards the earth end the bias voltage drops and clipping starts at lower peak voltages. Noise can never exceed peak audio level.

* 6 Barrack Street, George Town, Tas.

It is actually possible to clip the audio input peaks until distortion starts, without losing much audio volume, but at the same time reducing random noise peaks.

As a refinement the potentiometer could be reduced to, say, 350 ohms, and a fixed 150 resistor connected at the earth end. This would limit the amount of clipping to prevent total cut-off.

In practice, the noise limiter on-off switch of the existing receiver is simply replaced by the potentiometer knob, and any degree of limiting is at your finger tip.



The cost:—

1 6H6 valve	2/6
1 socket	1/3
1 potentiometer	5/6
4 resistors	3/0
1 mica capacitor	1/3
	13/6

Try it, chaps!

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Bit Dia.:	Volts	Watts	Nett Weight	Length	Recommended Use
Model 6 1/16″ (Fixed)	6	6	0.25 oz.	6″	Electrical measuring instrument fine assemblies, hairsprings, R.F. pick-up and speech coils, hearing aid sub-assemblies, etc.
Model 6a 3/32″ (Push-on)	6	6	0.25 oz.	6″	As for Model 6 (for extremely delicate work only).
Model 9 5/32″ (Push-on)	6, 12, 24-27½	8.3	0.25 oz.	6″	Hearing Aids, Radio and TV Sub-assemblies, Coils, Electronic Instruments, Model Construction, Electro-Medical, etc.
Model 12 3/16″ (Push-on)	6, 12, 24-27½	12	0.5 oz.	6.25″	Radio, Television, and Telecommunications assemblies.
Model 18 3/16″ (Push-on)	6	18	0.75 oz.	7¼″	For heavier work, heat capacity equivalent to that of most 80 watt soldering irons.

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SIMPLE SIDEBAND*

PARTS SEVEN and EIGHT

LESTER EARNSHAW, ZL1AAX

A SIMPLE VOICE CONTROL SYSTEM FOR EITHER A.M. OR S.S.B.

"How's copy, John?"
"A little QRM. How am I?"
"There's some on you, too."
"Well, follow me up. I'll go up five."
"OK . . . OK, I have you now. How am I?"
"Fine."

The above of course is an extract from a typical voice controlled operation. Note the similarity between this and the telephone or "duplex" operation. The only difference is that in this case you can't actually listen on the frequency at the same time as you are speaking. But pause for breath and bingo! in comes the reply. Just like that.

Although it took the s.s.b. boys to make this form of operation popular, there never has been any real reason why it could not have been used by a.m. stations provided one or two little points are observed.

The stations concerned must operate **exactly** on the same frequency otherwise, when two stations accidentally transmit together, which of course happens often, a loud heterodyne will blast your ears off. The only other requirement is that you switch off the a.v.c. and operate on "manual" to prevent the noise surging up when the carriers are off. You might of course fit a squelch circuit and have de-luxe a.m. v.o.x.

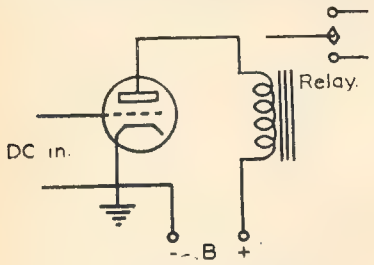

Fig. 1.—D.c. applied to grid will cause relay to open or close.

V.o.x. circuits are really simple and the "bits and pieces" will be found in almost every junk box or piece of surplus equipment. This will prevent you from spending the money the XYL gave you to pay the butcher! (Better the junk box than the "dog-box.")

There are two generally used systems of v.o.x.—those which use relays and those which don't. Both work well but simplicity is on the side of the relay system. Certainly, it is more versatile and is more readily adapted to suit various types of transmitters. It is the system I propose to discuss.

Fig. 1 shows a triode amplifier which, instead of having a resistor or a transformer in its plate circuit, has a relay. Most of you who managed to struggle past the primers realise that if we apply a positive bias to the grid of the tube we will get an increased plate current. If we apply a negative voltage we get a decreased plate current. When sufficient plate current flows the relay clapper pulls down, and when the plate current decreases the relay clapper lets up. We arrange the contacts to switch the transmitter and receiver on and off. To get our d.c. voltage we steal a **little** audio from the transmitter pre-amp. when the volume control is not looking and with a diode we rectify it and apply it to the grid of our relay tube. And that's all there is to it!

It is more usual to arrange the bias on our relay tube so that when no d.c. is applied to the grid of the d.c. amplifier the relay stays closed. We do this by putting a potentiometer in the cathode circuit and adjusting the resulting voltage drop until the plate current allows the relay to hold down.

Now, when you say, "Hello John," your mike converts the sound to audio, a diode rectifies the audio and gives you a **negative** d.c. voltage and this you apply to the grid of the relay tube which responds by causing the relay to open, the transmitter to switch on, the antenna to switch from transmitter to receiver, and the receiver to "deaden". But so that the relay does not open in between "Hello" and "John", you arrange a long time constant by placing a condenser from the grid of the relay tube to ground and this stays charged between words, but leaks away when you pause at the end of the sentence. There is nothing worse than to have a time constant here that is too short and allows relays to clash and bang throughout a sentence. Conversely, you don't want the relay holding in too long when you pause or you miss the other fellow's short replies.

No matter how good the voice control system, you will always lose a portion of the first letter or word because it takes a certain amount of time for the condenser to charge up and the relay to open and the transmitter to switch on. Don't be surprised therefore, if out of your "Hello John" you lose "'alf the haitch". This will hardly be noticed and in practice, because you tend to speak in "bursts", is discernible only by careful listening.

Now that we have our voice control switching the transmitter on and the receiver off (and vice versa) there arises another problem. When John at the other end says his "Hello", the sound coming from the speaker of our receiver immediately switches on the transmitter. It happens so quickly that about all we get is the "'alf an haitch". To overcome this, one could wear phones and although phones do exclude the XYL's "Come and get it!" that's not much use if you have to go hungry. Fortunately for the peace of the home we are readily able to overcome this little problem merely by rectifying a portion of the receiver output with the rectifier connected so that we get a **positive** d.c. output voltage. This, when applied to the grid of the relay tube (or d.c. amplifier which is its correct designation) opposes the negative voltage and thus we get cancellation. In other words, you are able to say your "'Ello John" and John is able to reply with his "'Ello Bill" without the transmitter behaving like a multivibrator gone mad. This circuit we call **antitrip**.

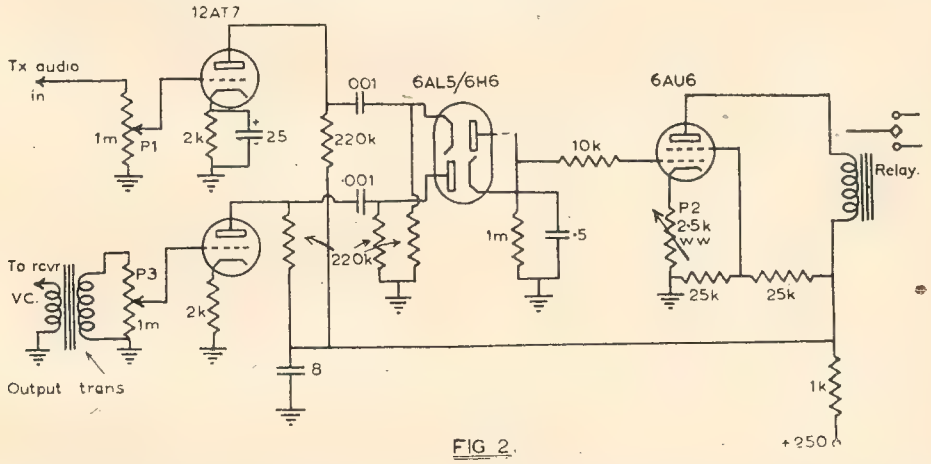

FIG 2.

Fig. 2 shows the complete circuit of the v.o.x. used at this and a few other stations. The 12AT7 (or similar) is a voltage amplifier. One section amplifies the audio from the receiver and the other the audio from the audio pre-amps. in the exciter. This latter point is taken off just before the volume control so that the v.o.x. is independent of gain control settings.

The two triodes feed the two diodes whose d.c. outputs are combined in the 1 meg. resistor and applied to the grid of the 6AU6 through a 10k grid stopper.

The method of adjustment is as follows: Turn down the receiver gain. Turn down P1 and P3. Adjust P2 until the relay closes. Talk into the mike and turn up P1 until the relay opens and functions as I have already described. Now turn the receiver to normal room level. The receiver will, of course, trigger the relay. Turn up P3 until the relay ceases to chatter. When you speak into the mike the relay should click in and out normally yet be unaffected by the receiver noise. Do not turn P3 higher than necessary or you will have to turn P1 up to match. This

* Reprinted from "Break-In," Nov., Dec., 1958.

will cause you to yell into the mike to get the relay to "click" in.

Here are one or two bug-shooting points. By using the phones, make certain no hum is getting in from the receiver. Make sure that no clicks are coming in through the power supply and getting into the 12AT7 stage. Check this by connecting a 0.1 μF. condenser in series with the phones and hooking the lot across the power supply. Clicks heard here will trigger the relay.

If the relay responds to noise pulses from the receiver try placing a 0.001 to 0.01 μF. capacitor from either or both plates of the 12AT7 to ground.

There are several ways by which you may use the relay to "kill" the receiver and transmitter. You may use the contacts to switch off the h.t. to the exciter, the supply to the antenna relay, and in its turn, the h.t. to the receiver. If you wish, you may short out an audio stage in the receiver or short out the speaker. I tried many methods and only after much experimenting did I decide in favour of the system that uses a negative bias to bias off the unwanted tubes. This method may make use of an existing power transformer.

In addition, all that is required is a 6X4 or 6X5 rectifier, an electrolytic condenser and a 10k bleeder resistor.

A word about v.o.x. relays: Any relay with about 5,000 to 20,000 ohms resistance will perform just so long as it does not take too much current to close it. This is especially true if it closes on less than 8 mA.

One further point; if you bias off an oscillator to "kill" it you may be troubled with either frequency shift or squawks. This is one of the reasons it is usual to use oscillators outside the Amateur bands and then heterodyne to get to the desired frequency. This allows you to "kill" the mixer yet leave the oscillators running. On a.m., of course, the frequency shift would not bother you but on d.s.b. and s.s.b. of course, it is important.

Concluding, I must say that there is something gratifying in being able to hear QRM almost the moment it comes on the frequency. It has happened though, that sometimes I have begun a CQ call and part way through have had a station come up on the frequency continuing a contact he has been having with a station on a **different** frequency. This means, of course, that you put your tail between your legs and shift frequency, leaving the other fellow to it. The "facesaver" is that had you been on "overs" you would have continued and no one would have got through!

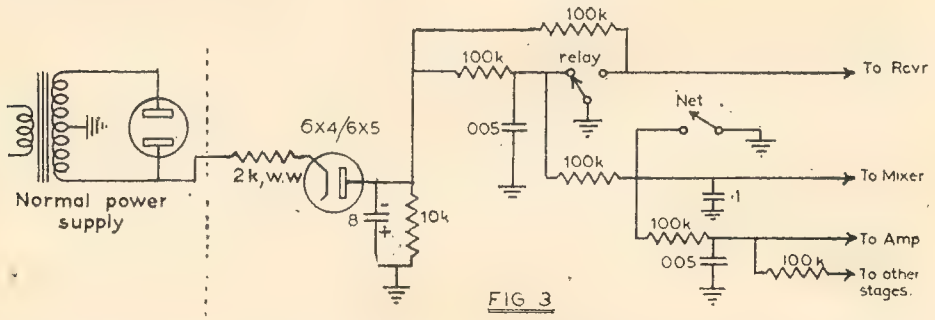

FIG 3

(See Fig. 3.) By applying this bias through isolating resistors (as you would in your a.v.c. in the receiver) to the grids of the tubes you wish to disable and then using the relay to **short out** the bias so that the tube (or tubes) is allowed to operate, one has a near perfect system of switching which is absolutely free from clicks and squawks, a system which allows "shaping" of the characteristics to almost any desired degree.

In my own case I apply the bias to the suppresor grid of an r.f. stage in the receiver and to the output through a small neon bulb. This neon is optional but does remove the last vestige of thump when the receiver gain is high. You can, of course, apply the bias to the a.v.c. line but this does prevent you from using long time constant a.v.c. because the receiver will take some time to recover.

By removing the bias to the exciter (by shorting it out) its tubes are able to function. Again this is effected without clicks and bangs.

The bias may also be applied to a T/R switch if one is used. In my own case, I use a set of points on the v.o.x. relay to switch an antenna relay. I find this method very satisfactory so long as the antenna relay is quiet or put in a sound proof box.

HETERODYNING FILTER AND PHASING TYPE S.S.B. GENERATORS TO THE WORKING FREQUENCY

The need to heterodyne the s.s.b. generator to the working frequency has probably lost more customers to s.s.b. than has any other portion of the seemingly complex circuitry used in this fascinating form of transmission. Fellows listen to the glib that: ". . . take one mixer circuit, add one overtone oscillator, insert a series tuned trap, mix again, add pepper and salt to taste . . . !" It doesn't take much to make a fellow give up! Yet the actual business of heterodyning is basic and used in almost every receiver worthy of the name receiver. The transmitter circuitry can be identical in almost every way. Images, one of the receiver problems, can be just as troublesome in the transmitter if care is not used in the selection of the appropriate frequencies. Fortunately though, we are free from signal-to-noise ratio problems, the signal level being in this case considerably higher than in a receiver.

Why heterodyne? is one of the questions I am often asked. Why not double as in a.m.? You can double if you wish though I do hope I am not on the receiving end when you do. Except for its frequency there is little difference between s.s.b. and audio. (Voice is s.s.b. in fact!) Imagine how your pet hi-fi would sound doubled! That's about how I reckon the s.s.b. would sound. (It is like that to some, I have been informed!)

Heterodyning to the wanted frequency in a receiver does not cause distortion to the signal and we heterodyne in the transmitter for exactly the same reason. In a filter rig it is not practical, and indeed, it would be well nigh impossible, to have the filter variable, tuned to whatever band you would transmit on. A phasing type transmitter can and often is made to produce s.s.b. on the working frequency but this is the exception rather than the rule. Various factors influence design toward the heterodyning principle. Several of the reasons are: (a) it is usually easier and cheaper to produce s.s.b. on one frequency; (b) it is difficult to design a phasing rig that will retain the same sideband suppression over a band of frequencies; (c) it is too easy to get feedback to the oscillator when the output is on the same frequency. There is nothing worse than a s.s.b. signal whose carrier was also f.m. modulated before it was suppressed (if you have heard this you will most certainly agree with me); (d) in using voice control it is undesirable to switch off the v.f.o. each time you go over to "listen". It will be most difficult to keep the oscillator stable when it is periodically heated then allowed to cool and it is difficult, though not impossible, to "kill" the oscillator immediately you go to receive, otherwise each pause for breath may be shattered with the agonised gasp of a dying oscillator. Killing the oscillator quickly will produce key clicks both in the receiver and on the air.

In producing s.s.b. inductive filters are usually designed around the 10 kc. to 30 kc. frequencies. Mechanical and xtal filters usually operate around the 100 kc. to 500 kc. frequencies. Taking say 500 kc. as an example, it is now necessary to feed a v.f.o. of around either 3.3 megs. or 4.3 megs. along with the 500 kc. signal into a mixer tube such as a 6BE6 to get 3.8 megs out. **It is important to realise that the proper selection of one of the two oscillator frequencies available determines which sideband will be transmitted. Frequency conversion may invert the sideband.**

In a phasing type rig this is of little consequence because it is so easy to switch to the opposite sideband in the generator itself, but in a filter rig this is of the utmost importance. You may deliberately generate a lower sideband then inadvertently invert it in the frequency conversion process. Exactly the same inversion may take place in your receiver converter, where you may easily invert the sideband and it is this that causes the need to tune a receiver backwards when some converters are used ahead.

One other trap for young players is the image. In a receiver this may show up as annoying QRM, but in a transmitter this will show as **output outside the Amateur band**. No doubt the authorities will find this annoying! Stop and think about it: We have a generator at 500 kc.; have a v.f.o. (local oscillator in a receiver of say 3.3 megs.; we feed

these into a mixer and get an output (i.f.) of 3.8 megs. **But we also have an output of 2.8 megs** (3.3 megs less 500 kc.) which might well be a disturbance to the shipping channels. It is the tuned circuit in the mixer plate circuit which selects the particular output required. **One tuned circuit is insufficient.** This is one of the reasons against the use of high level mixers. In my opinion, for this and other reasons, high level mixers are to be avoided like a plague.

And again just another pitfall for the unwary is this: A mixer tube such as the 6BE6, 6BA7, etc., will also amplify and **it will amplify the v.f.o.** so that in our typical case above we also have an output of 3.3 megs from the mixer. Once again we depend upon the tuned circuits to eliminate this.

Now, to rub salt in the wounds, the v.f.o. will have harmonics and though in this particular case they will not be troublesome, there are very many applications where they are.

To those of you who still remain with me after that lot, I suggest this: If you would use generator or conversion frequencies that are not in common use get out a piece of paper and a pencil and work out all the various combinations there may be to trouble you. Otherwise, unless you are just plumb lucky, you had better get your story ready for the radio inspector.

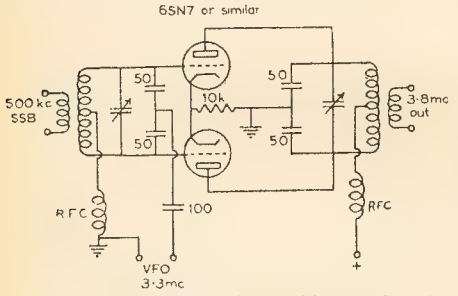

Fig. 4.—A balanced mixer will cancel out the v.f.o. frequencies in the plate circuit.

All is not lost however, even if you do have an output where it shouldn't be, for by the use of traps and more unusual mixers it is often possible to get rid of the unwanted.

Take a look at the mixer circuit of Fig. 4. No doubt you have seen something like it before. It is a balanced modulator which is really the same thing as a mixer. It is also sometimes used in v.h.f. converters. It is then called a **balanced mixer.** A balanced mixer it is. Taking the earlier figures: If we feed our 500 kc. signal into the tuned circuit in the grids this signal will be amplified and be presented to the tuned circuit connected to the plates. But because the plate circuit is tuned to a frequency (3.8 megs.) considerably different from the input, there will be little or no output at this frequency. A v.f.o. though of 3.3 megs. would, if fed into the grids in the same manner, get through a plate circuit tuned to 3.8 megs. But if we feed the v.f.o. into the grids (or cathodes) in parallel the v.f.o. signal will be cancelled out in the push-pull plate circuit. You may, if you wish, feed the v.f.o. signal in in push-pull and put the two plates in parallel. It matters little.

A balanced mixer has slightly less output than the conventional mixer tube and though it uses a few more components it is often the best by far in a particular application. But remember this, it is important, because a mixer is a non-linear devise **it creates harmonics.** This applies to all mixers. Knowing all these above factors, it should not be too difficult to keep just one jump ahead of the radio inspector.

Although I used a filter rig in my explanation above, all of the remarks were applicable in exactly the same sense to the phasing section. If the phasing rig generated s.s.b. on say 9 megs., which is about the most commonly used frequency, and a v.f.o. of 5 megs. is used (round figures, all cases), the output or i.f. frequency will be both 4 megs. and 14 megs., either frequency being selected by the tuned circuit in the plate. If the 4 meg. (80 metre) output is selected, **beware of the 5 meg. frequency produced from the v.f.o.** If you use several tuned circuits between the mixer and the antenna this 5 meg. product may safely be ignored. A rule of thumb: **Never tune up to a carrier that will not balance out with the carrier balance controls.** More than likely it is an unwanted spurious output. The grid current of your final should be zero when the carrier is wound out.

Harking back to our phasing rig, just by using the 20 metre coils we may now select the 20 metre output. We get either 14 or 4 meg. output merely by changing the coils. **But,** and the but is a large one, also present in the output **will be the third harmonic of the v.f.o.** which is around 15 megs. Again if you use several tuned circuits following the mixer you will have little trouble. But if you run a simple exciter into the antenna you are liable to have two outputs at once. The March, 1956, "QST" article of an ARC5 conversion rig, as it is published, has considerable output on the unwanted frequencies as a result of high level mixers and too few tuned circuits.

Fig. 5 shows the circuit of a mixer and amplifier which may follow the phasing rig shown in May 1959 "A.R." The crystal and coils shown will, of course, be changed to the new frequency of 9 megs.

A v.f.o. which tunes the range 5 to 5.5 megs. will give output from 3.5 to 4 megs. and from 14 to 14.5 megs. There will be a small amount of output at 5 megs. when operating on 80 metres but with the use of an amplifier, antenna tuner and antenna which is in itself a tuned circuit, no trouble will be experienced here. Also, on 20 metres there will be a small amount of output at approximately 15 megs. Once again, with an amplifier, etc., this will not be troublesome.

A few further points: High C in the tuned circuits will reduce spurious output but will create need to tune the circuits each time the frequency is moved. Also, the L/C ratio determines the voltage across the tuned circuits and this will of course affect the output.

Using a 9 meg. s.s.b. generator one may get the following outputs from various injection frequencies:

80 metres: V.f.o. 5 megs. (round figures).

40 metres: V.f.o. 16 megs. (round figures). Triple a 5 meg. v.f.o.

20 metres: V.f.o. 5 megs. (round figures).

15 metres: V.f.o. 12 megs. (round figures). Double a 6 meg. v.f.o.; or 15 metres: V.f.o. 30 megs. (round figures).

10 metres: V.f.o. 19 megs. (round figures). Triple a 6 meg. v.f.o.

February 1957 "QST" gives an excellent article on an ARC5 conversion to give these various v.f.o. frequencies. In any case you must use a separate doubler or tripler and the grid current to the converter should be tube manual value. **Do not exceed** the correct value. It is 0.5 mA. for a 6BE6. Higher current will give considerably greater output of the unwanted products. It is often a good idea to run a little lower grid current for this reason.

Next month I propose to give the circuit diagram for another type of all-band heterodyne unit such is in use at this station.

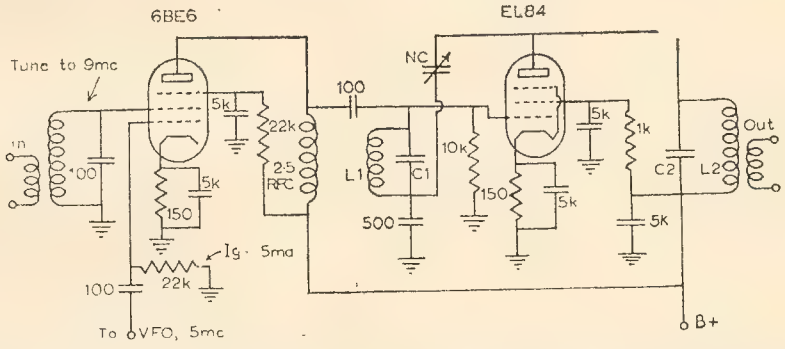

Fig. 5.—A mixer and amplifier circuit suitable for use after a 9 meg. s.s.b. generator. This circuit gives either 80 or 20 metre output, using only the one v.f.o. range. (Tune L1/C1 and L2/C2 to 80 or 20 metres.) Voice control may be used by removing the mixer plate and screen voltages.

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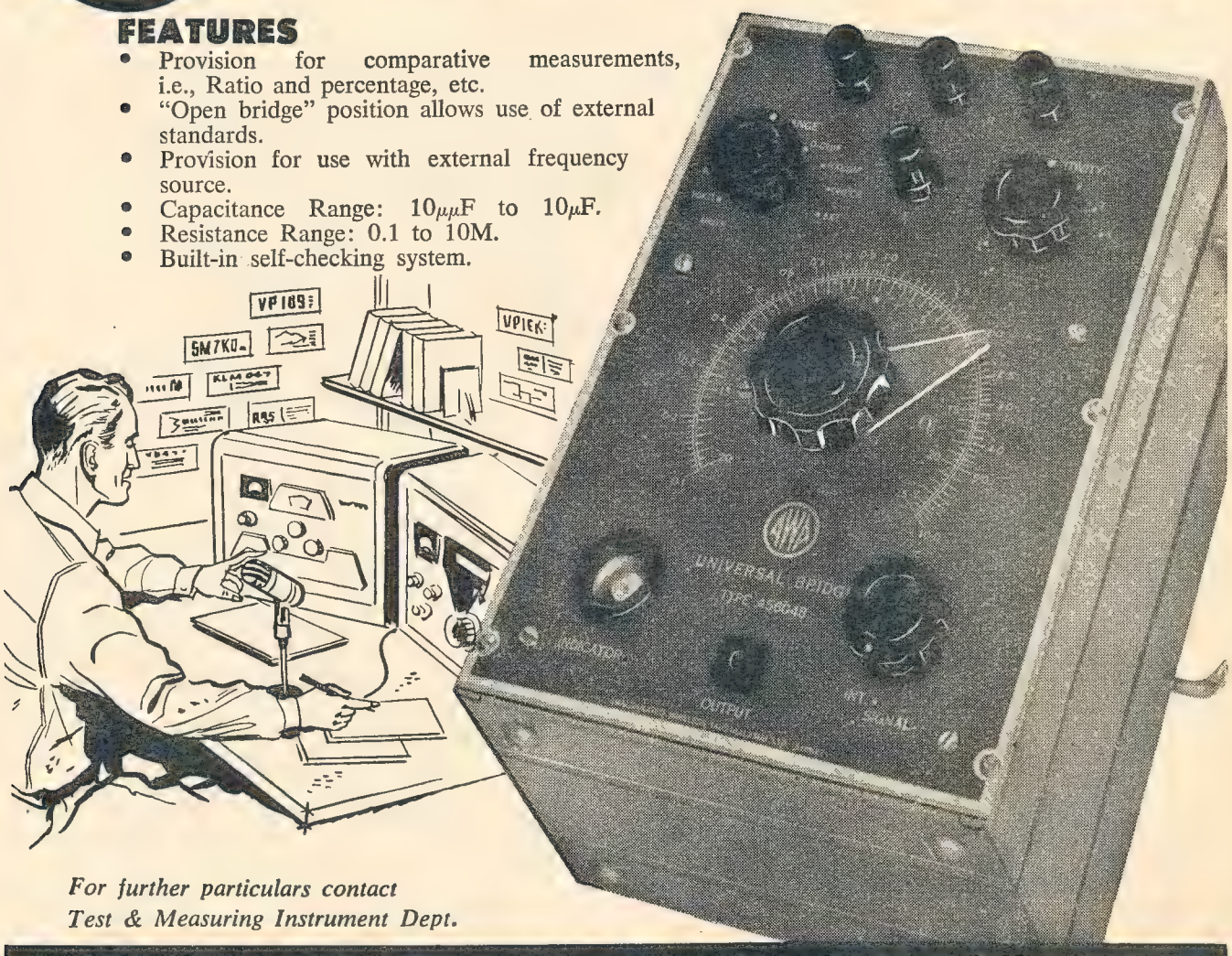

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VK-ZL DX CONTEST, 1959

Phone—1000 GMT, Saturday, 3rd October, to 1000 GMT, Sunday, 4th October
CW— „ „ „ 10th „ „ „ „ 11th „

N.Z.A.R.T. and W.I.A., the National Amateur Organisations in New Zealand and Australia, invite world-wide participation in this year's VK-ZL DX Contest.

Objects: For the world to contact VK and ZL Stations and vice-versa.

When?: Phone—24 hours from 1000 G.M.T., Saturday, 3rd October, to 1000 G.M.T., Sunday 4th October.
C.W.—24 hours from 1000 G.M.T., Saturday, 10th October, to 1000 G.M.T., Sunday, 11th October.

Duration for all contestants is 24 hours.

RULES

1. There shall be three main sections to the Contest—
(a) Transmitting Phone.
(b) Transmitting C.W.
(c) Receiving—Phone and C.W.

2. The Contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made. Mobile Marine or other non-land-based stations are not permitted to enter the Contest.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. C.W. will be used for the **second** week-end and Phone for the **first** week-end. Stations entering for both Phone and C.W. must submit entirely separate logs for each.

5. Only one contact per band is permitted with any one station for Contest purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor, and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. **Cyphers**: Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between 001 and 100 for the first contact, and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number must be 054, for the third 055, and so on. If any contestant reaches 999, he will start again with 001.

9. **Entries** must be set out as shown in the example below, using one side of the paper only. **Entries must be postmarked not later than the 31st October, 1959, and addressed to the Federal Contest Committee, W.I.A., Box 2611W, G.P.O., Melbourne, C.1, Victoria, Australia.**

10. **Scoring: For VK-ZL Stations only**.—Five points will be scored for each contact on a specific band with an overseas station, and in addition for each new country worked on that band BONUS points on the following scale will be added:—

1st	Contact	....	50 points
2nd	„	....	40 „
3rd	„	....	30 „
4th	„	....	20 „
5th	„	....	10 „

For the purpose of this rule the official countries list will apply with the exception that each VE, W, and ZS call area will count as a separate country.

For Overseas Stations.—Five points will be scored for each contact on a specific band with a VK or ZL call area (ZL1, 2, 3, and 4; VK0 (zero), 1, 2, 3, 4, 5, 6, 7, and 9), and in addition for each new call area worked on that band a bonus of 50 points will be added.

11. **Logs** submitted by **overseas contestants** should be set out as shown in this example (VK and ZL entrants will modify their logs accordingly.)

VK-ZL DX Contest, 1959
Page 1

Name.....Section.....
Address.....Call Sign.....
.....
.....
Claimed Scores: Total.....
Band Scores: 80 Metres.....
40 „ .....
20 „ .....
15 „ .....
11 „ .....
10 „ .....
Tx-Input Power.....Aerial(s).....

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.
Signed.....
Date.....

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards**—

(a) **VK-ZL Stations.** — The W.I.A. will award certificates to the top scorer on each band and the top scorer in each VK and ZL district. Additional certificates may be awarded depending on the number of logs received.

(b) **Overseas Stations.** — Certificates will be awarded to the highest scorer in each country (each call area in VE, W and ZS). Additional certificates will be awarded depending on the number of logs received, e.g. to the high scorers on different bands and to place winners where scores are exceptionally high.

RECEIVING SECTION

1. The rules are the same as for the transmitting section, but it is open to all members of any Short Wave Listeners' Society in the world. No transmitting station is permitted to enter this section.

2. The Contest times and logging of stations on each band per week-end are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section but will omit the serial number received. Logs must show the call sign of the station heard (instead of "worked"), the serial number sent by it, and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. **It is not sufficient to log a CQ.**

4. VK receiving stations may log overseas and ZL stations, while ZL receiving stations may log overseas and VK stations.

5. Certificates will be awarded to the highest scorers on the same basis as for the transmitting stations.

VK-ZL DX Contest, 1959
Page 2

Date Oct.	Band Mc.	Time G.M.T.	Station Worked	Serial Sent	Serial Received	Points Claim.	Bonus Points	(Leave Blank)
3rd	14	1054	VK2XYZ	57001	54027	5	50	
	14	1100	VK3ABC	54002	44131	5	50	
	14	1110	VK3AXQ	46003	57008	5	—	
	21	1220	VK3AZX	58004	56045	5	50	
	21	1230	ZL2XYZ	56005	57152	5	50	
	21	1257	ZL2ABC	55006	45013	5	—	
	21	1315	VK9XY	57007	58141	5	50	
	21	1405	VK9AB	59008	59016	5	—	
TOTAL (Points Claimed + Bonus Points) 40 + 250 = 290								

[Contestants are requested to maintain "sent" serial numbers in the correct sequence and **not to divide their logs into bands.**]

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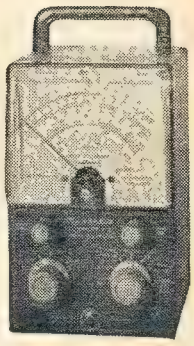

Specifications: D.C. volts: 7 ranges 0-1.5 to 0-1,500. Input resistance: 11 megohms. Sensitivity: 7,333,333 ohms per volt on 1.5v. range. Accuracy: Plus or minus 3% full scale.

A.C. volts: 7 R.M.S. ranges 0-1.5 to 0-1,500. Freq. response (5v. range): Plus or minus 1 db. 42 c.p.s. to 7.2 Mc/s. Accuracy: Plus or minus 5% full scale. 7 peak-to-peak ranges: 0-4 to 0-4,000.

Resistance, 7 ranges: Measures 0.1 ohm to 1,000 megohms with internal battery.

Size: 7⅜ x 4-11/16 x 4⅛ inches. Weight 7 lbs.

PRICE: £27/10/0 plus 12½% S.T.
Postage: Vic. 3/9; Int. 8/4.

Easy Terms: £6/18/9 dep., 45/- monthly for 12 months.

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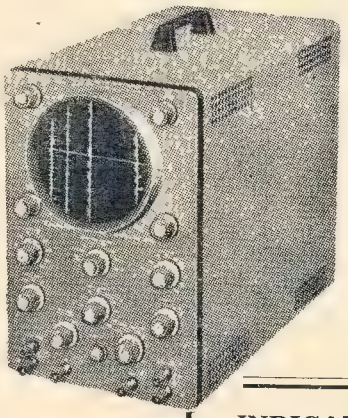
VERTICAL CHANNEL

Sensitivity: 0.025 volt (R.M.S.) per inch at 1 kc.
Frequency Response: Flat within ± 1 db. from 8 c.p.s. to 2.5 mc. Flat + 1.5 to — 5 db., 3 c.p.s. to 5 mc. Response at 3.58 mc. — 2.2 db. (All response measurements referred to 1 Kc.)
Rise Time: 0.08 microseconds or less.
Overshoot: 10% or less.

PRICE: £62/10/0 plus 12½% S.T.
Deposit £17, £5 monthly for 12 months.



HORIZONTAL CHANNEL

Sensitivity: 0.3 volt (R.M.S.) per inch at 1 kc.
Frequency Response: Flat with ± 1 db. 1 c.p.s. to 200 kc. Flat within ± 3 db. 1 c.p.s. to 400 kc.
Attenuator: Low impedance type in cathode follower output.
Input Characteristics: Selector switch permits use of external input through panel terminal, line-frequency sweep of variable phase or internal sweep from sweep generator.
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6WR	6″	6 watts	30-15 kc/s.	**£6/10/0**	1/10	3/-
8WR	8″	7 watts	30-15 kc/s.	**£7/0/0**	2/3	3/8
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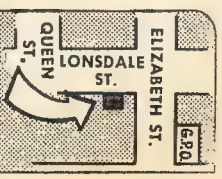

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A Sideband Man's V.F.O.

K. B. POUNSETT,* VK2AQJ

AS more and more Amateurs put sideband signals on our various bands, it becomes apparent that some advice should be put forward on the subject of oscillator stability in transmitters. Unfortunately there are a number of stations whose frequency slowly drifts away from that originally occupied. This causes continual re-tuning (and much tearing of hair) and destroys the wonderful advantage of voice-control operation. It is also a very bad advertisement for sideband and is a poor reflection on the technical ability of the operator.

The writer has this problem completely solved and the v.f.o has **no** drift right from cold. The reason being it stays cold!

When in the process of building his first s.s.b. rig, the author did quite a lot of research on the stability of v.f.o's. Most types of oscillators can be made reasonably stable by careful electrical and mechanical design. However, no matter how much care is taken, when the oscillator frequency determining components change in temperature, alas, drift occurs.

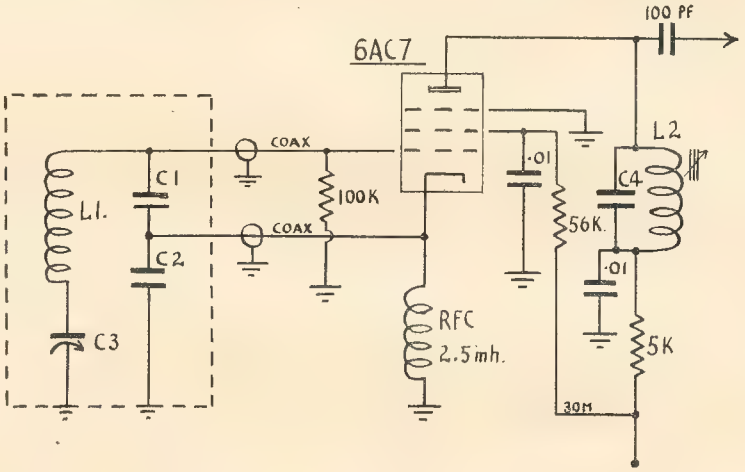


Fig. 1.
Suggested Circuit for V.F.O.

L1-C3, L2-C4.—Tuned to the required frequency.

C1, C2.—0.001 μF. silver mica capacitors.

The solution is to remove the v.f.o. tuned circuit from the heat. The source of heat being that radiated by the tubes in the transmitter. You are no doubt aware that after a very short time, the temperature of your transmitter cabinet has risen well above room temperature; so has your oscillator coil and tuning capacitor!

If the tuned circuit of the v.f.o. is removed several feet from the transmitter and connected to the oscillator tube by a couple of lengths of co-axial cable (or if you can get it, twin co-ax.) the coil and capacitor will remain as cool as the proverbial cucumber. This is not the only "keeping cool" effect. The guy you are talking to keeps cool too!

Getting down to practical details, at the writer's station, the coil and capacitors are mounted in a very rigid cast aluminium box measuring 6" x 5" x 5". The capacitor is the plate tank tuning capacitor with its gearing intact taken from a Command transmitter and the coil is a large one, wound on a ceramic former obtained from a T.U. unit. The connections are made within the box with ¼" copper tubing and the voltage dividing capacitors (C1 and C2) are silver mica types. A 6AC7 oscillator tube is used with good results and h.t. voltage stabilisation is not required (the author's line voltage has good regulation). If your line voltage varies considerably, glow tube regulation is recommended.

The co-axial lines between the tuned circuit and the oscillator tube can be up to about five feet long and the length will effect the frequency of the tuned circuit, so you will have to experiment with the L/C ratio. Aim at the highest L/C ratio that will maintain oscillation. The inductance or the capacitance of the tuned circuit is not quoted as these will vary with your v.f.o. frequency and components available, but use a good quality variable capacitor and a ceramic coil former and give them plenty of room in the metal box. The value of C1 and C2 in this unit is 0.001 μF.

When installing the v.f.o. box on your operating desk, please do not place it on your receiver or even up against it or all your work will be in vain; receivers usually get quite hot.

This approach to stability is recommended to all Amateurs, no matter what their mode of operation.

My signal stays put, does yours?

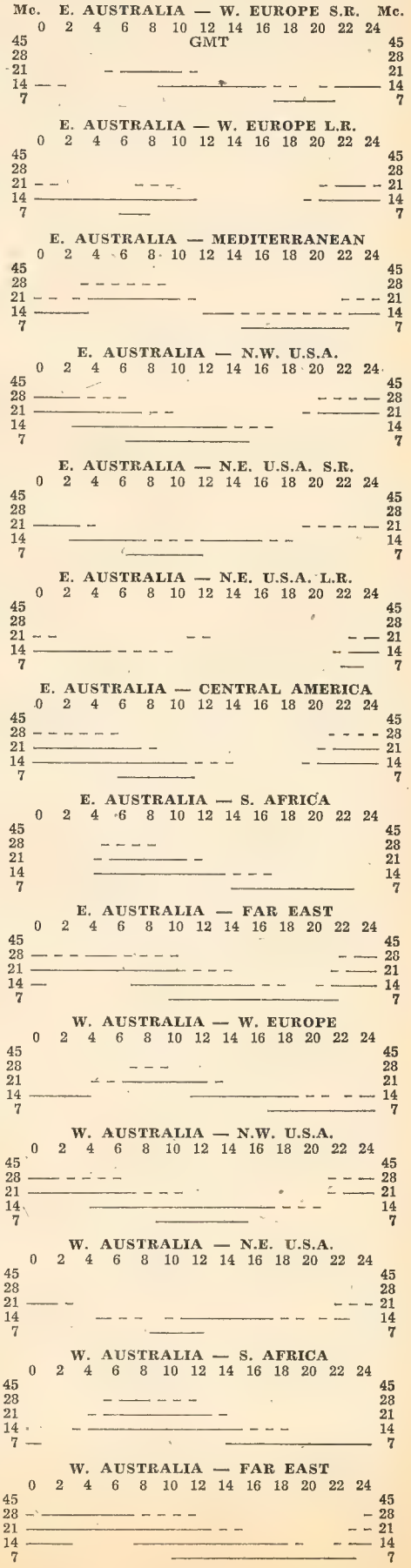
* 22 Seiffert Centre, Queanbeyan, N.S.W.

REFERENCES

Long, "Cutting Down V.F.O. Drift," "QST," August 1952, p.20, and "S.S.B. for the Radio Amateur," 1st Ed. p.162.

Brown, "A 35-Watt S.S.B. Transmitter," "S.S.B. Techniques," p.61, "A.R.R.L. Handbook," recent editions.

PREDICTION CHART, AUG., '59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E. AUSTRALIA — N.E. U.S.A. L.R.
E. AUSTRALIA — CENTRAL AMERICA
E. AUSTRALIA — S. AFRICA
E. AUSTRALIA — FAR EAST
W. AUSTRALIA — W. EUROPE
W. AUSTRALIA — N.W. U.S.A.
W. AUSTRALIA — N.E. U.S.A.
W. AUSTRALIA — S. AFRICA
W. AUSTRALIA — FAR EAST

D X

John C. Pinnell, VK2ZR
15 Summit Avenue,
Earlwood, N.S.W.
Phone: UW 4248.

Echoes of the grave concern felt by VK Amateurs, due to the drastic cuts proposed in their frequency allocations at the International Radio Conference at Geneva starting this month, have appeared in International publications. It is not necessary for me to deliberate on the serious effect these cuts would have on Amateur Radio if carried. This has been well covered by "A.R." and others. The time is now on top of us when our case for holding the frequencies, which we have enjoyed for so long, is in the balance; a balance which seems heavily loaded against us. We must, therefore, do everything within our means to convince the powers that be to reconsider their recommendations. Much has already been done on the "home front". Let us now wish John Moyle good luck in the difficult task that lays ahead. Please support the I.T.U. Fund if you have not already done so.

VK3AOM: "The most noticeable aspect of DX on 20 metre phone during the past few weeks has been the number of VEs that have been coming through with good strength, and with the exception of a few Ws, the almost total lack of any other stations." In the Sydney area Europe came through on c.w. for very short periods around 2100z and again at times around 0700z. Conditions during the past month on all bands have been poor.

NEWS AND NOTES

G5RI, Derek Riston, Red Lion House, Hexam, Northumberland, England, on behalf of himself, G3FXB, G3FPQ, G5DQ and G6CJ, requests skeds with VKs on 3.5 c.w. during the VK Spring and Summer months. (BERS-195).

VS9MB QRT end of June and returned to England. (VK2QL).

Bill **HL9KJ**, in Seoul, Korea, says there are seven legitimate now in Korea using prefix **HL9.**

VK2AGH (ex-VK3WO), who is on a business trip to America, hit the headlines in the W4KVX DX Bulletin. A picture of his QSL card and comments re proposed VK frequency changes at Geneva.

VS1KB is moving to British North Borneo, ZC5, and will remain there until about the end of the year. He will operate 21 and 14 Mc. c.w. and 28 and 21 phone.

A number of Amateurs from Norway are planning s.s.b. operations from Jan Mayen and Spitzbergen in July and August. LA6VC will be in the party.

ZS6IF is planning a DX-pedition to Basutoland and possibly also Swaziland and Bechuanaland, this coming October and November.

8J1AA is active at intervals on the 14 Mc. c.w. band. He is with the Japanese I.G.Y. Antarctic expedition. QSL via J.A.R.L. but you will not receive a reply until Feb. 1960.

UG6AW, Armenia, has been active on 21 Mc. c.w. most days from 1630 to 1730z.

CT2AI and **CT2AC** are both active from the Azores Islands on 15 metre phone.

It is reported that **K9ECO** and **W0AIW** hope to be active from Seychelles on August 21, using a VQ9 call sign.

Mike **UA0OM** should be operating from Kyzyl, Tanna Tuva, Zone 23, by the time you read these notes.

G3LKZ, G3ATU, and **G3HCZ** are planning an expedition to Monaco from August 23 to 31. They will work 14, 21, and 28 Mc., and possibly s.s.b.

Phonies: **YA1PB**, who has been worked on c.w., is a phoney as the real one only uses phone. **AP5B** is unknown at the address given, and **EP1AH** calls but does not answer; probably phonies also.

ZC3AC—call is now changed to VK9MV. (2QL).

QTHs OF INTEREST

HK3KG—P.O. Box 3009, Bogota, Colombia. (BERS195).

KR6BW—Frank Reed, 6431 O.P.S. Sqdn., A.P.O. 235, San Francisco, Calif., U.S.A.

VP9DU—Nev. Wicks, C. & W., St. Georges, Bermuda. (BERS195).

9K2AL—P.O. Box 1947, Kuwait, Arabia, Persian Gulf.

VS9MB—C/o. Radio Club R.A.F., G.A.N., B.F.P.O. 180, G.P.O., London. (BERS-195).

LX3PF—Via DL9PF; Walter Vedder, 8 Mauerkircherstr, Munchen 27, Germany.

FM7WU—QSL via W2CTN, Jack Cummings. 159 Ketcham Ave., Amityville, N.Y., U.S.A.

VP2VA—Rowan Roy, Tortola, British Virgin Islands, B.W.I.

HH2NV—P.O. Box 1141, Port-au-Prince, Haiti.

FG7XE—Georges de Vipart, 29 Rue Henri IV., points a pitre, Gaudeloupe.

FB8XX—P.O. Box 587, Tananarive, Madagascar.

YA1IW and **YA1TD**—Via Gladys E. Eastman, 735 Glen Ave., Glendale, Calif., U.S.A.

VS4BA—Via W5UX; R. W. Carr, Jr., 154 Country Lane, Can Antonio 9, Texas.

VP8EG—Via G8KS; S. L. Hill, Riverhall, Holwood Park Ave., Farnborough, Kent, England.

VP8EP—Via G3JAF; A. H. Trigell, Lynwood, Everton Rd., Hordle, Lymington, Hants, England.

AP5HQ—Islam Ameen, 8 Div. Sig. Regt., Quette, West Pakistan.

9G1CF has closed down for good. All outstanding QSLs will be answered via R.S.G.B.

HC4IE—Box 30, Manta, Ecuador.

VE8CG is on Bank Island, 200 miles inside the Arctic Circle. (VK2OW).

ACTIVITIES

3.5 Mc. C.w.—**L3039:** W1SYE, K2FC, W3BIP/3, W3OI, W3FYS, W4FU, W6GFY, W6JVA, KW-6CGA, W7HZ/7, W7LAD, W9UB/G, W9VT, VE7BAR/7, VR2DA.

7 Mc. C.w.—**2QL:** OA4FM*. **L2022:** OZ4LP (off ZM6), UA0KAA, W/Ks. **L3039:** DL1AD, DL1TS, DJ3JC, DU6TY, G3AQ, G3GXH, GW-3NDB, HC4IC, KL7CTG, KN7GSE, KN7HDH, OA4FM, OZ4LP, SP6QG, UA3KHA, UA0FF, YU2ARS. **BERS195:** DU6XT, EA2EY, F9MS, FK8AH, G3MAN, HA3MA, HB9SF, I1CRS, OK-3AL, ON4JB, OZ4LP/M, SM5BJO, SP8CR, UA1FL, UB5KEF, YO3AC, YU2ARS.

7 Mc. Phone—**L3039:** JA8AEO.

14 Mc. C.w.—**2OW:** FB8XX*, HH2LD*, HC-4IE*, KP4AZ*, UA3AN*, UA0IK*, UA0JB*, UA0KFB*, UA0KU*, UP2NM*, UR2AT*, VE-8CG*, VS1FZ*, 9M2FK*. **2QL:** FB8XX*, VS-9MB*, EA8LX*, ZP5LS. **2ZR:** DL1AD*, F3BG*, G3BKF*, HL9KJ*, HA5KAY*, HG9TZ*, KR-6GY*, LA2YE*, LU1NE*, OH3TH*, OK1QM*, ON4QX*, OZ1QM*, PA0WBR*, SM7BEZ*, UA-3CT*, UA0LU*, UB5BO*, UC2BG*. **4DO:** W/Ks*, KH6s*, EL4A*, OH3NM*, OK1SV*, SP-6NF*, CE0AD, CN8BF, DM2BEO, EA6AM, OK1FF, UA0JJ, UB5FJ, VP5BL, VP7NA, ZS-6DM. **L2022:** CE9AS, CR5AR, CX6AD, FK8AI, FK8AW, LU8EN, MP4QAO, OA1NI, ON4IX, PA0POC, PY2UY, UB5KBO, UC2WP, XW8AI. **BERS195:** BV1US, CX5CO, DU1SCS, HB1SR, HH2LD, IT1AI, LU8EN, LX3PF, PJ2CE, TI-2PZ, UD6KAK, UI8BA, UN1AE, VP5ME, VP-7NA, VS9MB, XE1AX, XW8AI, YV5ADP, ZK-1AU, 8J1AA, SP1LH/MM.

14 Mc. Phone.—**3AOM:** JA1BNK*, KR6CGA*, ON4GM*, VEs 1NZ*, 3ARS*, 3BWY*,, 3PN*, 6RM*, 7ALE*, 7AEW*, 7EC*, 7JB*, 8JW*, W/Ks*, XE2KO*. **4DO:** VE3BST*, VE3TW*, W/Ks*. **L2001:** DJ2DW, FA8CF, VK6CS. **L2022:** XE2AM. **L3065:** KH6CLW, KB6BH and many W/Ks.

21 Mc. C.w.—**2QL:** SV1AB*. **2ZR:** F9BG*, OK1KCZ*, W/Ks*. **4DO:** DL1LZ*, DL9KP*, FK8AW*, G6XY*, JA4HM*, JA9FV*, KC4USK*, VE7EH*, XE1AX*, W/Ks*, DJ4EJ, JA1CC, KP4AOB, OH1UO, ST2AR, UA4IF, UA0KIA, UA0KFA, UA0KUV, VP1HA, VR1B.

21 Mc. Phone.—**4DO:** CO8JK*, CO8OD*, VEs*, VK0HA*, W/Ks*, YV5AFT*, KG6VIT, KX-6CW, TG7JD, ZC4CH. **L2001:** F8JJ, G3JAF, GM2DQ, KA2BR, KA2BS, KH6BFP, BTF, QPB. K6LKL, VR2BC, JZ0DA, ZL4LZ, W6MUM. **L2022:** JZ0DA. **L3065:** K5KBH, K6IFU, K6IMK, K6LCX, K7DKO, W6BHG, W6LZV, KH6s CCL, OR, BFP, KB6BH, VR2AZ, VR2BC.

28 Mc. Phone.—**5WP:** OH7NF*, BV1USC*, XW8AN*, numerous ZS*.

QSLs RECEIVED

2OW: BV1US, ZS6AMG. **2QL:** EA0AF, FF-8AC/GN, FQ8AP, FS7RT, JT1YL, KR6AK, SS5RP/7, UM8DX, UP2NM, ZB2I. **2ZR:** EA-1EG, ET2VB, FQ8HA, JT1YL, KP4AIO, I1UB, IT1PA, UM8KAB, UP2KCB, VQ2MS, VR1B. **3AOM:** UR2BU. **5RK:** BV1USC. **BERS195:** ET2VB, HK3KG, PY2AHS, SU1MS, UI8KAI, UR2BU, VP9DU, VQ5EK, VR2CC, VS9MB, JA6ST/MM, YU3AE/MM. **L2022:** DU1RTI, KA-7MD, KA0IJ, KR6QM, UR2BU, VS4JT.

YA1PB.—KH6OR is arranging contacts and arranging QSLs for this station.

VP1HA suggests that anyone working a VP1 station should not QSL first; because those VP1s who operate legitimately are QSLing 100 per cent. in an effort to cut down pirates causing QSL confusion.

KC6CG and **KW6CGA**: Cards are now available from these two stations by contacting KW6CGA, U.S.C.G. Loran Station, Navy 130, F.P.O., San Francisco, California.

This month conditions generally have not been so good and some of the regulars did not send in a list. Perhaps the cold weather has saved the burning of some midnight oil and lowered the catch of DX stations.

Please include in your notes the call sign, frequency and type of transmission. Sometimes this vital information is missing; twice this month.

That is about the lot for this month and my appreciation to the following: **W1KVX**, for the use of his DX bulletin via 2QL; **2OW**, who can only manage to get on during the evenings when there is not much good DX on; **2QL**: seems to be able to get the good ones with about 40w.; **3AOM** got among the VEs on phone—hope I have everything in order this month, George; **4DO** finds the high noise level of city life is cramping his DX activities; **5WP**, who seems to have no trouble to get through to ZS land; **L2001**, welcome back to the page, Barney; **L2022**, your letter very interesting and will keep a watch on the 80 metre band for some of the DX—wish you luck with A.O.C.P. exams; **L3065** is having some rx trouble; hope you get it fixed and get those last four States for W.A.S., Ian; **BERS195**, who hears plenty and gets swags of QSLs.

— · · · —

CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

R.D. CONTEST—USE OF BANDS

Editor "A.R.," Dear Sir,

Since I have had my ticket, I have taken part in every R.D. Contest except one. During the Contests I have noticed that the 14 Mc. band has not been fully used, namely 14.2 Mc. upwards. I know many other Hams will say it is the American phone band, but I think at least for the 24-hour period of the Contest, no one would object to the whole band being used for the Contest.

In the 1958 Contest I used a frequency of 14.250 Mc. for over an hour without hardly having to shift my v.f.o. and worked a row of VK6s, who very politely shifted off the frequency after working me. It was quite a pleasure to operate with very little QRM in the middle of the Contest. There was very little DX coming through at the time. Therefore I urge all participants in the Contest to make full use of the bands, irrespective of any W phone bands or any "gentlemen's agreements".

Whilst on the subject of "gentlemen's agreements", I think they are doing our hobby a lot of harm, inasmuch that certain parties are trying to grab the frequencies we do not use—14.2 Mc. upwards, so if we want to retain the whole of our present bands, use them! You won't work Ws if the Commercials, with their kilowatts, are on top of them, so if you hear DX on 14.250 Mc. call it on or near that frequency and work them. I have done it on numerous occasions and had some very nice QSOs.

I know that I will most likely get "torn to pieces" for writing this, but I'm sticking to my guns and I know many other VKs who think the same.

—R. D. Martin, VK5TM.

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Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

50 Mc. BAND

The doldrum months are with us though the band has not yet reached the Dodo stage. From notes available it appears as though VK4 is the only Division to keep the International DX flag flying, whilst VK3 and VK4 shared a couple of Es openings. Reports about the t.v. bands indicate that there may have been other openings for the taking, though that is problematical. One ZL was overheard on one of the d.c. bands relating that towards the end of June he copied ATN2 for 2½ hours straight. Another report is that a VK6 has been watching the VK3 version of Channel 9. Not just once, but three nights a week. Maybe the chap concerned could send in a report on his efforts, the antenna he uses and the type of signal he receives. With that information before the boys, they may get the urge to run a series of regular tests on 144 Mc. as distinct from the spasmodic efforts made when 50 Mc. links VK6 with VK3 and VK5.

Hugh 5BC had about 15 minutes of listening to a signal from the north on 49.85 Mc., July 1, at 1330, so it looks as though something at least rode over the VK4 barrier. The band needs watching all the time even though DX-wise it is quiet. It is noticable how the gang are back into the winter habit of nattering away locally, neglecting the possibility of DX putting in an appearance. DX is still possible, though not probable for another month or so. That natter habit lost a few openings last year in the spring period when various Divisions reported listening in to Interstate ragchews, but could not break in to startle the boys.

An interesting QSL card passed this way through the month, one to Chas 2ADE from VE7AQQ confirming a 50 Mc. contact on April 7 at 0505 GMT, signals to S8. This is not Charlie's only contact with VE, there have been others, and in his own quiet way has also nibbled a slice out of the XE DX bun also.

144 Mc. BAND

Where is this band going and what uses is it being put to? Has the band gone just so far and come to a halt, or has the average Ham too much on his hands in trying to handle 50, 144 and 288 Mc. all at the same time? As it is, 50 Mc. provides the opportunity for DX with local yarning thrown in, 144 Mc. normally proves superior in working up to 150 miles or so and is the ideal contact band for both fixed and portable operation, while 288 Mc. presents the fun and still has a long way to go. But has 144 Mc. been used to obtain the most from its DX possibilities. I'm afraid not. Whilst the gang has not been negative in its approach to that aspect of the band, tests generally have lacked continuity and staying power even on the 100 to 200 miles plus tests. A 6 to 8 week daily test sounds a long time, but after all it is only a fraction of a full year with its varying seasons. And these tests are normally only evening affairs with an excursion to early morning (say 0600-0700) as a variation. Are the daylight periods of Saturday and Sunday probed?

Has any attempt been made to plot ducting effects in each Division? Is there a duct pattern in each State and under what conditions is any given duct (if any) liable to be open? Has the better or more consistent DX been carried out across the trailing edge of high pressure areas and why were the record breaking contacts VK2/ZL and VK6/VK5 on an east-west path? Should the east coast concentrate on VK6 or does the north-south path offer better possibilities? Is 144 Mc. to be regarded as (a) a social band, (b) an ideal emergency band, or (c) a band where the v.h.f. man could justify his existance by probing its uses to the fullest. Officially we are no longer called "experimenters", but F.A.S.C. and other bodies hold the gun at our heads and ask what do we do to justify retention of any band.

It appears as though the V.h.f. Group in each Division should formulate plans for the intensive study of 144 Mc., maybe by forming sub-committees to co-ordinate group work on any one problem. V.h.f. Groups as they are cannot be blamed for not having done this already, it goes back to Divisional Councils who have never ever (am I sticking my neck out?) co-opted V.h.f. Groups to formulate policies for the use and investigation of v.h. frequencies. All too often they accept an annual report and say, "yes, how nice it reads, it sounds all right, you must have had a successful year," instead of asking pertinent questions as to how, what and why on the actual progress made in the study of the band. Maybe all this is asking a lot, it is only a hobby, some of us have had our fun. Unlike the A.R.R.L. with its full time staff and the R.S.G.B. with a full-time secretary to keep his finger on the pulse, W.I.A. Council members find themselves flat out to sandwich Institute worries into the few hours left over between earning a living and leading a home life. Sandwich I mean, being a Council member calls for more than attending one Council meeting a month. The same old story in Institute affairs, too few offering to do the necessary work. But now I'm off the subject, so read what the Divisional scribes have to say.—3OF.

NEW SOUTH WALES

The month commenced with the Group meeting at Gore Hill Technical College on 5/6/59 with 29 members present. A series of lectures on 576 Mc. were given by 2ZCH demonstrating with his xtal locked converter using coaxial tank circuits, 2ZAC with a pint-sized tx using a 12AT7 final and a very nice high power final stage using a QQE06/40 and tuned lines. He demonstrated the danger of having the chassis length in 576 Mc. gear equal to a quarter or half wave length. It becomes part of the circuit. On display was also a Helical beam for 576 Mc. 2HL displayed his ASB8 rx and gave some tips on converting this for 576. He also demonstrated some simple gear using RL18s feeding direct to a dipole. Brisk questioning by members indicated that there is quite a lot of interest in this frequency. The meeting was addressed by Div. President, Dave 2EO, regarding F.A.S.C. and the proposed loss of our frequencies and he enlightened us on many facts.

Scramble, 3rd May, resulted in 2AWZ and 2RX tied for 1st place with 19 pts. each, 2ZBU and 2ZFC with 18 points each, and 2WI and 2MZ with 16 pts. each.

Hidden Tx Hunt, 17th June, saw 2AWZ as the Fox hidden a newly developed area near Salt Pan Creek at Padstow with lots of possibilities of error by the hounds around the bays and bush. However, he was brought to light by Alan 2ZBG and Ron 2RX in 30 min., followed closely by Phil 2ZBB and shortly after by Bob 2ASZ who couldn't locate the starting point until half an hour after everyone had left. Having achieved a hunger, the remainder of the pack consisting of 2OA-2ZAV, 2ZBX, 2PM, 2ZCF-2ZMP appeared in time to partake of a very ambitious and delicious three course supper turned on by Dave. A visitor to the hunt was George WA6DFH/MM with 2ASZ.

Treasure Hunt was to have been held on Sunday, June 28, but unfortunately was washed out by heavy rain. We thank Horrie 2HL for his work in preparing for this and we hope he will hang on to his locations for a future date. The next night event will be a Mobile Fox Hunt on Aug. 19 with possibly 2HL and 2AZO as the fox. Watch the Sunday night broadcast for details.

Committee members John 2ZAV and Kev. 2ZFC have done an excellent job on the Sunday night 2 mx broadcasts from 2WI over the past three months and your hosts for the following period will be Phil 2ZBX and Keith 2BK.

Regular skeds are still going on on 576 Mc. between 2MZ and 2HL over about a 40-mile path from Blaxland to Linfield. 2HL is mostly on 2 mx working 2MZ, 2AWZ, 2ABZ on phone duplex. Dick 2ZCF also on using ASB8 rx and RL18s tx.

Illness does not appear to have dampened the spirits of some of our members this month. Jim 2ZCW was hospitalised for pneumonia and Keith 2BK lost an argument about keeping his appendix. Hope all is in order now chaps.

Coming lectures in August will be on Transistor Power Supplies by 2RW, following 2AHH's lecture in July. This should be very interesting, so don't miss it.—2ASZ.

VICTORIA

Es gave two openings to VK4 during the month. Sigs crashed in from the north on June 7 at 1445, the Brisbane gang lasting until 1515, while Bob 4NG hung on until 1530. 3ZBP had 4NG to himself on June 18 when Bob's sig came through at 1215. June 20 beaming north at 1757, 3OF heard a DX sig on approx. 50.75 commence to call CQ then break into a test series as the signal commenced to break. No call sign was given but the inflection of the English used was reminiscent of the operators in the Java area shortly after the war. Sigs peaked 8 with deep QSB and a slow fade at the end to out. Lasted about three minutes. 3ZER with headquarters at Ballarat keeps the Melbourne gang entertained with his 50 Mc. mobile while flitting around the countryside N.W. of Melbourne. 288 Mc. continues to use up the excess energy of the 50 Mc. boys and tests with the Ballarat area continue. Quite a few new calls have been heard on 50 Mc. lately.—3OF.

QUEENSLAND

Only "rare DX" here is that 4ZBI copied 4ZAB from Ipswich. There was a break through early in June to the south and Mick 4ZAA worked a few including one—3ZAI mobile—actually mobile too. 4HD still working Les 4XJ in Bundaberg most nights, other nights can be heard working John 4PU and 4ZBI. Believe 4ZBW is going to Darwin, so maybe we might be able to work Darwin on 6 mx. 4WD not heard much now. July 1, JAs 1, 2, 4, 6, 7 and 9 were in for an hour during the evening. It appears that Bob 4NG on June 2 had JA1, 4 and 8 at his QTH between 6 and 8 p.m., also JA0 on the 3rd, but conditions poor and they went out at 2100. June 5, 4XJ at 1919 calling 4NG nearly made it, was heard by Bob at S8 for a brief period. On the 6th at 1830, 4NG had JA9JP for a contact, also JA4IO and JA3CE.—4ZBI.

The VK4 V.h.f. Group built up six W.I.C.E.N. Communicators (per 2ARG's article, Oct. '58 "A.R.") and they were given a trial under fire down at the Palm Beach Convention. They proved very effective in their designed capacities and were utilised in an exercise "evacuating groups of campers from areas directly in the path of flood waters." Believe that 4ZCM is still floating somewhere off the Queensland coast with a Communicator held above his head, yours truly forgot to evacuate him from the flood area at the critical moment. However, they really went over well in conjunction with base stations for both v.h.f. and l.f. gear.

Few new calls appearing on 50 Mc., with old ones disappearing for a time, apparently quite a lot of building activity going on. T.v. starts today, as a matter of fact the test pattern is on at the moment, so I guess we shall have our share of troubles in due course.

144 Mc.: Odd signals are reappearing, the lack of DX on 50 Mc. bringing back a bit of life to a pretty dead band. Some plans afoot in several quarters for big DX on 2, but so far planned schedules and details haven't materialised, but it will come.

288 Mc.: More activity here on 1 mx than on 2 mx. Almost universally mod. osc./super. regen. arrangements but stabilised gear is beginning to come to the fore. Looks quite promising but results may be hampered by the activity barrier.—4ZBD.

SOUTH AUSTRALIA

The 288 Mc. activity has been terrific of late with attempts on various State records. Frank 5FP going to Mt. Brian, Vic. 5JH to Maitland on Yorke Peninsula, and 5ZDB to Myponga—all on Sunday 14th. Haven't heard the results of this effort yet. Others heard on 288 are Brian 5ZBI, Bill 5WR, Curl 5ZBL, George 5ZGA and Bevan 5ZCS, plus John 5ZDL re-broadcasting the Sunday morning 5WI session. Incidentally, John does the 50 Mc. re-broadcast also.

Have heard that there is some activity on 144 Mc.; have not monitored this band of late, but understand that there are several new calls there. This should suit Hughie 5BC, who is always looking for new contacts.

50 Mc. news is not prolific, the only DX being VK4EY, from Townsville, breaking through about 5 p.m. on Monday 15th (holiday), George 5ZGA, John 5ZDL and Curl 5ZBL managed to exchange signal reports before the band closed.

New calls on 50 Mc., starting with Peter 5ZDP using an 807 and running 25w. to a folded dipole; Eric 5ZDQ also using an 807 and 25w. to a folded dipole; and Bevan 5ZCS with 20w. to a QQE06/40. Both Bevan and Peter have been on 288 for some time. Eric has some trouble with hum in his modulator, but should clear it up shortly.

Mick 5ZDR has had a heavy building programme which includes new modulator and a rack to mount all the gear in. Recently Mick put up a 4 el. for 50 Mc. with 12 l. for 288 Mc. on top. He intends to use a 6J6 transceiver for this band. Mick also tells me that he may be taking up residence on Kangaroo Island. Here's an opportunity for boys to work all the v.h.f. bands across the water; nice going Mick, hope you make it.

(Continued on Page 19)

S W L

Maurice Cox, WIA-L3055
Flat 1, 37 Boyd Crescent,
Olympic Village, Heidelberg,
N.23, Victoria.

Hi fellas, here is your scribe once again with the news and doings of the s.w.l'ers. There is not very much to report this month. I have only received two letters (which is a start).

The June meeting of the VK3 Group: I am sorry to say that there was no meeting held as only five members were present. However, we had a most enjoyable chat with VK3WJ, George Robinson, and watched the progress of the VK3WI tx being made t.v.i. proof and what workmanship; they certainly know their job. Hope it's not too long before they are on the air again.

There was no meeting in July as it consisted of a visit to the shack of Keith VK3YQ.

The VK2 Group has challenged other States in the R.D. Contest and we of the VK3 Group accept that challenge. The VK3 Group intend going to Bert Stebbing's (3ZGD) QTH where antenna, hot coffee, and BC342, AR7 and 348 rx's will be available. We intend keeping our own logs and work in shifts. Our many thanks go to Bert for offering his shack to us for this Contest.

I would like to hear from any VK3 s.w.l. members who intend entering the Contest and would like to go down to Bert's shack. Please let me know at MXY 110 Ext. 311 by the 7th August so arrangements can be made.

Now last month we visited Mr. George Palmer's QTH at Williamstown where a good night was had by 20 members. He demonstrated to us stereophonic sound, projected t.v., some shorts, and a full length Western on cinemascope. At interval we went up to the projection room and saw two projectors, an 8 inch R.C.A. t.v. set which he uses as a monitor, then a tape recorder, four 17 inch t.v. sets with name plates on front stating the country he has received t.v. on. They were: B.B.C. London, Manilla, the Phillipines, and Hawaii Islands. Then after the Western, we went back in again to the projection room where Mr. Palmer played back the tape recording of his first B.B.C. t.v. sound. This was the day that London had a train crash in which just on 100 people were killed. The reproduction on tape of this was astounding. This visit was enjoyed by all present and our thanks go to Mr. Palmer for the most enjoyable and educational night.

Have had a letter from Ian Thomas, and he says that "In my first 12 months of listening I heard 63 countries, 45 of the 49 States (U.S.) and logged somewhere in the vicinity of 1,900 contacts. Over the past month or so I have been having some trouble with my rx and at the moment it is only working on 20 mx." Over the past few weeks he had heard a lot of VEs and KLs around 1730 hours and heard a new country—KZ5PA. At the moment he is planning to build a superhet rx and finish off his g.d.o.

This month is election of officers for the VK3 Group, so would all please attend this meeting which will be held at the rooms on Tuesday 25th.

I would like to mention here a couple of stories I heard. Bert Stebbings left his rx going one Saturday morning on 6 mx and heard a couple of carriers and took no notice. He then proceeded down the street to buy a new hat and what do you know he missed a break through from XE land. Hope that hat is still wearable Bert.

Then there's the s.w.l'er. who has bought a nice sizeable shack in the Dandenong Ranges; he is going to build a pigeon loft. We presume the pigeons are going to help in his erection of an antenna and not for pigeon pies. Good work, George, we hope to see you in person again soon.

VK2 GROUP

Had a nice letter from Tim WIA-L2052/VK2ZTM. He mentions the following:

"Dear Maurice, many thanks for your letter. I am enclosing for your information this circular which we sent to all our s.w.l's. when we took over office. Our Publicity Officer Les is in the R.A.A.F. and gets quite busy and I have not heard anything of late from him. Would you like a copy of this State's bulletin which we are going to send to all s.w.l. (yes, we would Tim). It will be included in the general bulletin each month. It will be a double page of everything of interest to the s.w.l. DX, converters, aerials, technical articles and anything else we can lay our hands on. The success will depend upon what we can get out of our members. We are going to provide a better service to s.w.l's. than the other associates and see if this will increase our membership. We have more than 350 associates.

"Do you receive VK2WI on Sunday mornings" (yes, Tim, 5/8), "3563 and 7146 kc., 145 Mc. at 11 a.m. A note on the 2 mx tx from 2WI. The freq. is 145 Mc., final 829B at about 80w. Aerial a four stack turnstyle about 60 ft. high and the signal quite often gets to 2ZBP at Illabool. Mostly it is only the carrier but Jim is 280 (road) miles from Sydney so it may bear watching for. I have held my call since March and work only on 2 mx. Run 832A in a home-built rig made from a 522. I have a 522 to get going to replace the other. Converter is one the V.h.f. Group put out in kit form. 12AT7 xtal osc., 6BL8 mixer, 6BQ7A r.f. amp., fed into an AR7 at 12 Mc. I tune off freq. from 140 Kc. to 12.5 Mc. only. Also use common aerials. 66 ft. with 66 ft. of feeder, single wire and fed for AR7. 135 ft. end fed with 600 ohm open wire not in use. 66 ft. folded dipole centre fed (mismatched) with two core 1044 and p.v.c. wiring. I am in the electrical game so all aerials are earth wire, etc. 2 mx has a 4 el. beam in the shack for receiving. I transmit on a ground plane, this is because the beam will not load the tx I am using. Have you seen the converter from 7 Mc. to 50 Mc. in May 1959 'QST'? Have a look, a very good set."

Thanks Tim for a very nice and informative letter.

One of our members, Warren Barnier, WIA-L2067, now has his full call—VK2UF. Warren uses an AR7 and hopes to be on both 20 and 40 mx with c.w. and phone on dipoles. His QTH is Manly.

It is very pleasing to note the formation of new clubs within this State. We wish the clubs at Goulburn and Albury every success and to all the new s.w.l's. with them good DXing.

The June lecture of the Group consisted of general discussion and a talk on the I.T.U. by the Divisional President, Dave 2EO. We were then taken on a tour of the t.v. training studios of the Technical College. Our thanks go to Norm 2ALJ who conducted the very interesting tour.

July meeting was a general discussion on the R.D. Contest.

By the time this edition comes out the R.D. Contest will be with us and on behalf of the N.S.W. S.w.l. Group we extend the challenge to all comers from VK. We would welcome letters from any s.w.l. anywhere and please address them to the S.w.l. Secretary, W.I.A., Box 1734, G.P.O., Sydney.

Watch the 40 mx band, chaps. At the time of writing the long skip is bringing in many new calls. Well that's about it for this month. We would like information for this page. Please let us have it by the second week of the month. (Maurice Cox would like them by the third week of the month.—Editor.)

IAN HUNT REPORTS

40 mx conditions again have been changeable with good conditions on large skip—VK4 and VK6, and ZK, however it does appear that the band may be consolidating itself with strong signals being received from neighbouring States. Some unusual effects have been noticed recently, particularly with regard to local stations who normally have S9 signals but have only been copied about the S4 mark on frequent occasions.

Conditions have been quite good for long distance c.w. work with some Europeans and ZKs as late as 7 and 7.30 p.m., whilst Pacific and Ws quite evident often through the whole evening. From 11.30 or midnight on, South African stations have been heard at fair strength on c.w. A number being heard calling CQ VK. Ian contacted FK8AU at 8.30 p.m. running 8w. on phone, given 5 and 6.

MICHAEL IDE REPORTS

Heard this month. 21 Mc. around 1500 E.S.T.: OA4AI, VR2BC, F9GP, OE1DH, OQ5FH; at 1730 ZS6AFX. 14 Mc. at 1615: CN8JR; at 1700 E.S.T. VK9, VE6, VE7, XE2, VR2, FK8AU. 7 Mc. at 1730, CX6BA; at 1800 VR2DA.

Well this is all for now chaps, 73, your scribe.

SCANDINAVIAN ACTIVITY CONTEST

General Rules for Non-Scandinavians

Contest Periods: C.W.—1500 GMT Saturday to 1800 GMT Sunday during the third week-end, September, every year.

Phone—1500 GMT Saturday to 1800 GMT Sunday during the fourth week-end, September, every year.

Contest Call: Non-Scandinavian stations call CQ SAC on c.w. and CQ Scandinavia on phone.

Bands: 3.5, 7, 14, 21 and 28 Mc.

Objects: Non-Scandinavians will try to work as many Scandinavian stations as possible. The same station may be worked once per band during the Contest. Only c.w.-c.w. and phone-phone QSOs are valid for the Contest. The prefixes used in Scandinavia are: LA (Norway), LA/Ps (Jan Mayen, Svalbard and Bear Island), OH (Finland), OH0 (Aaland Islands), OX (Greenland), OY (Faeroes Islands), OZ (Denmark) and SM/SL (Sweden). Actually all of these prefixes are not geographically Scandinavian but they are considered so during the Contest.

Serial Numbers: The serial exchange consists of six-digit (c.w.) or five-digit (phone) numbers: RS(T) plus No., e.g. 599001 or 59001, etc. Every contestant must start from 001.

Points: One point for every **complete** contest QSO.

Multipliers: Maximum of 8 per band, consisting of the prefixes listed in "Objects" above. LA/Ps are counted as one and the same multiplier.

Final Scoring: The sum of complete QSOs on each band multiplied by the sum of multipliers on each band.

Contest Logs: The logs are to be filled in following order: Date, GMT, station worked, sent no., received no., band, note of NEW multiplier. Separate logs for different bands are not necessary, but a summary sheet for each band is required with information of the scores on the bands involved. On this summary sheet the contestant will plainly write (block letters, please) his/her call sign, name and full address. Also the operating class to be stated. Separate logs for phone and c.w. are required. The rest of the space on the summary sheet is recommended to be used for personal comments. Finally, the signature of the contestant certifies that he/she fully agrees to the rules, has been working according to the unwritten Amateur Radio law and agrees to the final decision of the Contest Committee. Logs must be mailed not later than October 15 to Contest Committee S.R.A.L., P.O. Box 306, Helsinki, Finland.

C.C. DX CONTEST

Advice has been received from Portuguese East Africa that they will be running an International DX Contest between 0000 GMT, August 15, and 2400 GMT, August 25.

All Amateur bands may be used on either c.w. or phone. A station may only be contacted once on each band. C.w. contact gains 1 point, phone 1.25 points.

Logs should be forwarded to the C.C. DX, P.O. Box 875, Beira, Mozambique, Portuguese East Africa, not later than 31st October, 1959.

V H F

(Continued from Page 18)

George 5ZGA hasn't been very active of late, but is going for his full ticket next week. Best of luck George. John 5ZBA is re-building his 6 mx beam. John is using the skeleton slot for the driven elements and 1 reflector and 2 directors to both top and bottom sections. Knowing John's workmanship, the beam should be terrific.

Graham 5ZAP, in between his mobile excursions, has re-built his home rig modulator. It sounds quite good from this location, but seems to lack the audio of the old modulator.

Single sideband looks as though it has arrived in VK5 on 50 Mc. Reg 5QR has reached the testing stage with his gear. Whether Reg is using the xtal lattice filter system or the phasing system I am not sure, but his experiments will be followed with interest. I suggest that any Interstate reader be prepared to use their b.f.o. during the next DX season for I understand that there is two double sideband tx's on the way also.

Gilbert 5GX has completed his new moulation system. It is a form of speech carrier control added to a low power carrier (double Dutch I know, but its true). The audio gain is terrific, but self adjusting noise limiters clip it severely. A nice signal Gilbert when the noise limiter is switched off.—5ZAW.

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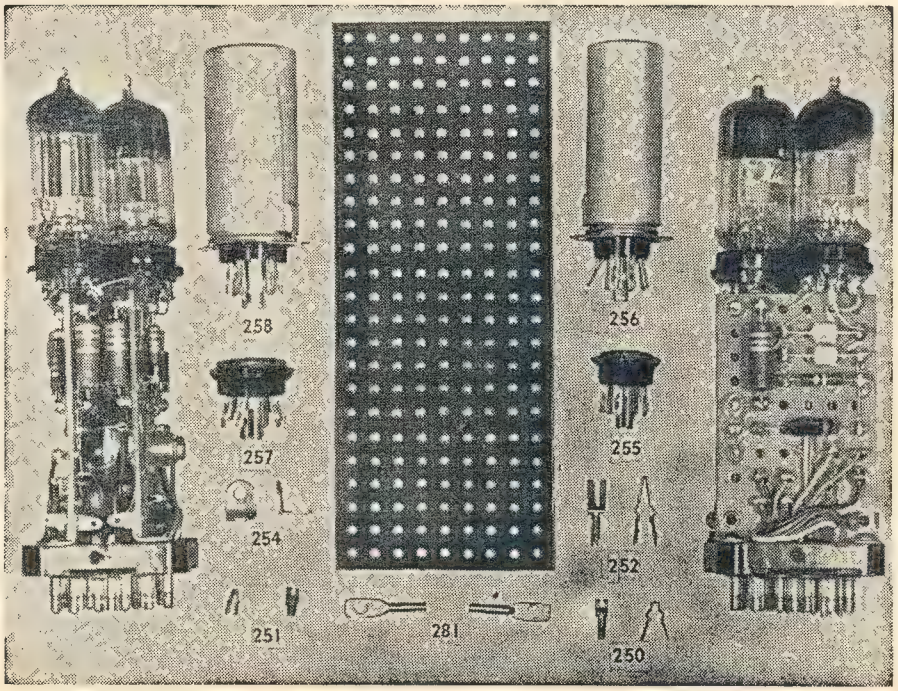

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NOTES

FEDERAL

REMEMBRANCE DAY CONTEST

On the 15th August fourteen years ago Victory Day in the Pacific was declared. To some of us it seems only yesterday that we were involved in a war not of our own making; a war which people said wouldn't last a year but which dragged out to five years or more; a war which was fought for the rights of free thinking people; a war which, whilst producing great advances in the world of science and living conditions of people, also sacrificed the lives of many who had only commenced to live.

Amongst these numbered few who paid the supreme sacrifice were members of the Amateur Service; their names are indelibly engraved on our Remembrance Day Trophy lest we forget that they gave everything that we may live on.

The Wireless Institute of Australia organises its Remembrance Day Contest on the week-end nearest to "D" Day in the Pacific to perpetuate the memory of those of us who didn't return. Many who have joined the ranks of the Amateurs to whom World War II. is a far distant event in history, may be reminded at this time that the spirit of the Contest should not be forgotten.

The Opening Ceremony of the R.D. Contest will be relayed by Divisional Stations on the following frequencies:—

VK2WI	7146 Kc.
VK3WI	7120 Kc.
VK4WI	7100 Kc.
VK5WI	7080 Kc.
VK6WI	7060 Kc.
VK7WI	7040 Kc.
VK9WI	7020 Kc.

The Rules for this popular Contest appeared in the June '59 issue of "A.R."

See you in the R.D. Contest?

I.T.U. REPRESENTATIVE

Little time is now left before the I.T.U. Conference and the departure of the W.I.A. Representative, John Moyle, VK2JU. John will be leaving Australia early August; and with him will go the best wishes of every Amateur and their hope that the outcome will be favourable to their cause.

See Editorial (page 1 this issue) for John's comments prior to departing for Geneva.

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FEDERAL QSL BUREAU

The following list of Antarctica call signs was supplied by Fred Bail, VK3YS: **Macquarie Island**—VKs 0CC, Clive Cooke (4CC); 0DS, D. Smith. **Davis**—VKs 0TF, Ted Fuller (5TF); 0RT, R. Torckler. **Wilkes**—VKs 0RH, R. Harvey; 0AF, A. Flett; 0JV, J. Denholm; 0HA, H. Alderice. **Mawson**—VKs 0EM, Eric Macklin (ex-1EM); 0AW, Alan Sawert; 0MC, M. Cosgrove; 0VH, Fritz Van Hulssen (ex-1VH).

The method of disposing of QSLs for the above stations and also for previous teams has been set out by Bill Storer, VK2EG (ex-1BS and 1EG) under date of 10th June:—

VKs 1BS, 1EG, 1AC, 1GA, 0AB, 0TC, 0KT, 0IJ, 0RT, 0RH and VR1B—All to Bill Storer, Lot 11, Prince Charles St., Frenchs Forest, Sydney, N.S.W.
0CJ and 0AF—To VK3SK.
0TF—To Fred Bail, VK3YS, Shannon St., Box Hill North, E.12, Vic.
0RO—To Bob Oldfield, 4 Jessie St., Pascoe Vale, W.8, Vic.
0AA—To VK1ACA, Canberra, A.C.T.
0PK—To Peter King, 15 Pine Ave., Golflands, S.A.
0RR—To Roy Arnell, Box 8, Ararat, Vic.
0PT—To Peter Turner, 3 Parsons St., Clayton, Vic.
0CC—To Roy Baxter, VK4FJ.
0EM, 0MC, and 0VH—Also to VK2EG.

Details of the S.O.P. (Sea of Peace) Award may be had from this Bureau. The award broadly requires proof of contact with at least ten of the following Baltic countries: OZ, LA, SM, OH, UA1, UP2, UR2, UQ2, UA2, SP, DL/DJ and DM. Contacts must be made during July of any year during the annual Ostseewache celebrations.

The number of active Somaliland stations post-war has always been less than ten, therefore a mass onslaught took place when VQ6AB recently was heard on 14 Mc. c.w., with a healthy signal. Details of the rig used discloses a four-stage xmitter with an input of 40 watts into a half wave dipole. Operator is Dave Higgins, who, as VS1BJ, made many contacts with VK stations. He requests QSLs for VQ6AB be sent to him care Somaliland Scouts, Hargeisa, Somaliland Protectorate, and he guarantees a QSL for all contacts made and s.w.l. reports received.

Alan Brown, VK3CX, the Award "specialist," who always has his ear very close to the ground on new awards and new countries, advises of a new award for All South Pole. This award, which is given by W4ML, requires 20 QSLs for contacts with the Continent—repeat Continent of Antarctica. Contacts with islands of Antarctica will NOT count. Additionally no more than five QSLs may be from any one prefix. No time limit has been set and a suggested line up would be five VK0, five ZL5, five KC4, five LU-Z or CE-Z, or VP8, etc., provided they were on the Continent of Antarctica. Any aspirants can get further details from Alan or from W4ML. Alan modestly admits that he has certificate No. 1—the first in the world. Well earned, OM.

Egypt has, of late, become one of the real rare DX countries to contact. SU1MS is active and QSLs all contacts. The operator, Mahmud Salam, operates 14 Mc. c.w. mostly, using a 40 watt home-built tx and a dipole antenna. QSL cards should be sent to 13 Kawa St., Zaher, Cairo, Egypt.

—Ray Jones, VK3RJ, Manager.

— . . . —

NEW SOUTH WALES

The June meeting of the Wireless Institute of Australia (N.S.W. Division) was held at the usual venue, Science House, Gloucester St., Sydney, on Friday, 26th June.

The meeting was well attended when the President, 2EO, opened proceedings at 8 p.m. The only visitor present was Graham 2DJ, ex Pilliga, but who will shortly be heard from a new QTH at Kyogle. The usual formalities dispensed with, 17 new members were admitted on the vote of the members.

The lecture on this occasion was given by Bob Mondel, his subject being "Distributed Amplifiers." The lecturer handled his subject skillfully and showed the manner in which these pieces of equipment are designed and the uses to which they are put, and in addition had such a piece of equipment for the perusal of members. Following question time, John Larke moved a vote of thanks to the lecturer.

The meeting closed at 10 p.m. and was followed by a Special General Meeting which had been called to determine the motion that "Fees of Associate Members be increased to £2 per annum." Following considerable discussion on the motion, the meeting affirmed the motion by a considerable majority.

The Special General meeting then closed and the members adjourned for the usual coffee and ragchew.

It will be appreciated if the responsible officers of the many radio clubs in N.S.W. will forward any notes of their activities to the Publicity Officer, Ted Whiting, 16 Louden St., Five Dock, N.S.W., to reach him by the 1st of the month so that they can be included in these notes.

HUNTER BRANCH

The usual monthly meeting was held at Tighes Hill, being quite informal with a variety of matters being discussed. In the absence of the Branch President, 2AQR took the chair and kept the unruly mob in check with a firm hand. Tim 2ZTM, Hon. Secretary of the S.w.l. Group, was welcomed and Tim did some good work by enrolling two members for his Group. Apologies were received from 2CS, 2XQ, 2ARV and Jackson, Foster and Jayne. The following members were present: VKs 2SF, 2AKX, 2ZL, 2XT, 2AFA, 2AEE, 2QB, 2RJ, 2ZDL, 2ZTM, 2AQR and Associates Sutherland, Bailey, Richardson, Hall, Stobbs, McLachlan, Gray and Fyfe. The unfortunate mix-up in regards to a room should be rectified by next meeting.

The exhibition of films arranged by 2XQ and 2SF was well received and thanks for your efforts, chaps. The action of the social committee in drawing up the programme for the forthcoming Annual Dinner and Blackalls Field Day was endorsed. A synopsis is printed elsewhere in this issue. The guest speaker will be the Hon. Alan Fairhall, M.H.R., VK2KB, who no doubt will have something interesting to say in connection with our recent crisis. The toast to Amateur Radio and the Wireless Institute of Australia will be proposed by Mr. H. R. Carter, VK2HC, and responded to by your Divisional President, Mr. D. H. B. Duff, VK2EO.

Due to the cold weather, news this month is very scarce. Did hear one chappie way out west complaining that the R.I. didn't give him a signal report when he was on the receiving end of a "bluey" for being out of the band. Bill 2ZL is now the proud owner of a "bow-tie" antenna strung between two nicely painted sticks. Bill always had his vee beam hidden behind the house until he was able to cure his t.v.i. Secretary Gordon reckons Bill must use wind screen wipers on his spectacles—the fog being so bad at the swamps of Phenyl Bay.

Wonder how long it will be before 40 mx behaves itself so that we can listen to 2AWX on Monday nights? Well, chaps, don't forget to mark your calendar—Oct. 3 and 4. You will be meeting some of the older old-timers who will be your guests. Believe even the Terrigal Tiger will be there in his wheel chair.

And last but by no means least, have you AGAIN contacted your Member re the F.A.S.C. findings. Next meeting at University of N.S.W., Newcastle, at Tighes Hill on August 14, and the Social at Bill Hall's on the 26th. Coming?

— . . . —

VICTORIA

NORTH EASTERN ZONE

Not much this month. It would appear that the boys this month are hibernating and are not frequenting the band very much these cold nights. George 3GD very active against the threat to our bands. In his spare time, George has been t.v.i. proofing his rig—all leads filtered and in metal cabinets, but is still having trouble with this type of wog. Incidentally, George is well outside the t.v. service area.

Frank 3ZU is also having his share of t.v. troubles. Frank is just back from holidays and is cleaning up his rig. Frank would like to know who has the zone freq. meter because he would like to use it in the near future. So one of you chaps own up so that Frank can contact you.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

REMEMB. DAY CONTEST, 1959:

Dates: Saturday, 15th August, to Sunday, 16th August, 1959.
Duration: 1800 hrs. E.A.S.T. to 1759 hrs.
Rules: As published "A.R.," June, 1959.
Logs: Return postmarked not later than **6th September, 1959.**

C.C. DX CONTEST:

Dates: 0000 GMT, August 15, to 2400 GMT, August 25.
Rules: See elsewhere this issue.

SCANDINAVIAN ACTIVITY CONTEST:

Dates: **C.W.**—1500 GMT, Sept. 19, to 1800 GMT, Sept. 20, 1959.
Phone—1500 GMT, Sept. 26, to 1800 GMT, Sept. 27, 1959.
Rules: See August "A.R."
Logs: Mailed not later than 15th Oct. '59 to Contest Manager, S.R.A.L., P.O. Box 306, Helsinki, Finland.

VK-ZL DX CONTEST, 1959:

Dates: **Phone**—1000 GMT, Saturday, 3rd Oct.—1000 GMT, 4th Oct.
C.W.—10th Oct.—11th Oct., 1959.
Rules: Overseas, as for 1957. VK-ZL, Bonus value altered (watch Aug. "A.R.").

"CQ" WORLD-WIDE:

Dates: Phone—Last week-end Oct. '59.
CW—Last week-end Nov. '59.

SILENT KEY

It is with deep regret that we record the passing of:—

VK6JT—J. K. Twycross.

Met Earl Scones and Max Johnston, who look very well. When I mentioned work they both laughed very subtly and looked at me as if I was silly (I'm beginning to wonder). If you hear the call sign 4EH, don't pass it by because it now belongs to our old friend, Les 3ALE, who is now in Brisbane. Sid 3CI is still working 10 mx during his lunch hour, but no activity on other bands as yet.

Your zone correspondent has gone back to 20 mx after having been ignored on 40 mx, but don't think I won't be listening, so mind your P's and Q's.

WESTERN ZONE

During the past month Trev 3ATR and his XYL, Lynette, organised an "open house" for district Amateur friends. Also included were Mr. and Mrs. King. Mr. King is the local M.P., and during the evening he was given a thorough practical demonstration in the activities of Ham Radio. Some good contacts were made, also QRM was encountered, so it was easy to explain how it would effect our hobby if any more space in our bands was lost. Mr. King was so impressed and interested that perhaps we have a new Ham in the making. We must thank Trev and Lynette for this evening.

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MAXWELL HOWDEN

15 CLAREMONT CRES., CANTERBURY, E.7, VICTORIA

Trev's station was a worthy one for this occasion.

Thanks to the State Council for giving us the honour of holding the Annual State Convention in our zone this year. It will be held in Stawell on 3rd and 4th October. This date will give all those able to attend an opportunity of paying a visit to the Annual Flower Show which is held in Hall's Gap. This show is worth coming a long way to see, so chaps have your buggies in good running mood for this trip. You will hear more regarding same in next magazine and we intend to make the whole show especially interesting for the XYLs and harmonics.

SOUTH WESTERN ZONE

The zone has been and is very active of late. The zone hook-ups also have been very well attended, the main item being the threat to cut our bands, which will be a terrible thing to happen.

An interesting event took place in the zone on 14/6/59 when Gordon 3AGV, of Colac, using a crystal controlled two-transistor transmitter, was heard by 2WH in Forbes. Hugo taped Gordon's transmission and re-played the tape. The signals were identified by Gordon and self. Shortly before this, the transistor set was heard by self, this being Gordon's first transmission with the little rig. Power was only a few milliwatts and frequency in the 7 Mc. band.

3AXU now has a 144 Mc. tx using an 829B in the output, but has not been on the air with it. May have it running in July. Have also band-spread the AR7 on 7 Mc. and it now covers 7 to 7.25 Mc.

John 3AGD has at long last shifted his tower closer to the shack so we hope to hear him on a little more. On the zone hook-up of 18/6/59 a voice came out of the silence and who should it be but Pat 3ADN (Lismore). John 3ARJ was portable at Bill Wines' QTH, so John called him in and we had a very good ragchew as Bill had not heard from Pat for years. Let's hope you can manage to come on the Thursday night hook-up at 8 p.m.

Don't forget the South Western Zone Convention to be held during the week-end of 31st October and 1st November, in the premier town of Victoria—Warrnambool—where there are plenty of motels that are very good. Why not bring the family along and make a week-end of it for the whole family?

If you intend coming and require accommodation, well just drop a line to Mr. Bill Wines, 48 Crawley St., Warrnambool, before 1st October.

GEELONG AMATEUR RADIO CLUB

The 11th Annual General Meeting was held in June and the election of office-bearers took place. This resulted in the following members being appointed: President, Dick 3ABK; Vice-Presidents: Bob 3IC, Jim 3ABT; Secretary, Vic Clark; Librarian and Equipment Officer, Bill Irwin; Publicity Officer, John 3AMC; Committee members (addition to office-bearers): Fred 3ALG, Bill 3BU, Bill Husin, Phil Costa.

The Club intends this year to put more emphasis on use of practical demonstrations with equipment in syllabus items.

Work on the Club transmitter is progressing under the supervision of Jim 3ABT and the Club's all-wave rx is being hotted up for the Ham bands by Eric Coxall.

Fred 3ALG has been heard on 80 mx testing out his new rig; a Geloso v.f.o. with 6146 in the final. Peter 3ZAV is putting finishing touches to newly built shack and is planning to run 40w. to an 829B on 144 Mc. Antenna is an 11 element Yagi. Plans later to be on 56 and 288 Mc. Arch 3BW active with s.s.b. on five bands; is very pleased with the way it cuts through QRM on the DX bands.—3AMC.

MOORABBIN & DISTRICT RADIO CLUB

At the meeting held on 19th June at the home of Ed. 3EM, some important business was ratified. As our Secretary, Laurie 3CN, having recently become engaged to be married, is in the throes of matrimonial preparations, Alf 3LC agreed to act as temporary secretary until such time as the air clears at Laurie's.

By the time these notes become published, the club hopes to be installed in its new club-rooms. These rooms comprise a newly constructed shack, 24 x 16 ft. on the property of Bob 3NZ at 17 College Gr., Black Rock, that address becoming the permanent and official address of the club. The club's station, 3APC, will be housed in these rooms, and poles are to be erected as soon as permission is granted by the local council.

We are all very indebted to Bob 3NZ for his generous offer of the premises, and are doing everything possible to make them cosy and comfortable. Working bees are being held on Sundays for this purpose.

You will be hearing more of our official station, 3APC, in the near future, and I take this opportunity of urging members to make use of the facilities offered. A v.h.f. group is also being organised.

New OMs! Why not join us and make the club a really worthwhile club to belong to. The fee is only 10/- per annum, and meetings are held bi-monthly, the first Friday night of each month is a natter night, and the third Friday night of each month the general meeting, so come along and help to make some really super get-togethers.—3LC.

— . . . —

QUEENSLAND

TOWNSVILLE

The last meeting of the T.A.R.C. was again well attended and 17 were present on the verandah of 4BX's, including two visitors brought along by Claude 4UX. As I arrived late, I did not get their names but hope they will be along again. It is pleasing to see the numbers growing and it is to be hoped some of the older members who have been absent for some time come along and voice their protests, etc., on everything in general.

Reports on the Palm Beach Convention were given by Alan 4PS. During the report by the Librarian he emphatically emphasised that members bring back the books each month (they can take them out again if they wish), thus permitting him to keep the records straight. Bob 4RW, in his report on the W.I.A., mentioned the article in local paper (back page) where the hydrogen bomb test in the Pacific had blacked out radio communication

WIRELESS INSTITUTE OF AUS.
HUNTER BRANCH, N.S.W. DIV.

★

EIGHTH ANNUAL

CONVENTION

SATURDAY and SUNDAY,

3rd and 4th OCTOBER, 1959

★

PROGRAMME:

Saturday, 7.30 p.m., October 3—

Dinner at University of N.S.W., Newcastle. Guest Speaker: Hon. Alan Fairhall, M.H.R., VK2KB.

Sunday, Oct. 4, Blackalls Park—

9.30-10.30 a.m.: 144 Mc. Hidden Tx Hunt.
11 a.m.: W.I.A. Broadcast.
11.30 a.m.: Disposals Sale.
Noon: Lunch.
1.15-2.15 p.m.: 7 Mc. Scramble (no a.c. permitted).
3-4 p.m.: 144 Mc. Hidden Tx Hunt.
4.30 p.m.: Prizegiving, Farewells, etc.
Usual races and competitions for XYLs and Harmonics.
Boiling water will be available free.

W.I.A. VICTORIAN DIVISION
SOUTH WESTERN ZONE

CONVENTION

will be held on

SATURDAY and SUNDAY, 31st OCT. and 1st NOV., '59

at

WARRNAMBOOL

For all inquiries and required accommodation, contact—

Bill Wines,
48 Crawley St., Warrnambool,
no later than 1st October.

for 3,000 miles. No wonder we had those freak conditions last year. Can anyone remember the bands behaving irractically as they are doing now?

Our President Alan brought under notice a move to establish a far northern division of the W.I.A. in VK4. This was very forcibly discussed and decided to bring up again next meeting when the boys have had time to think it over. Perhaps if we get that new State for North Queensland and the Northern Rivers of New South Wales, it will be imperative that new W.I.A. centres will come into being.

John 2JU, in his editorial of current month, certainly drives the point home on the P.M.G. Department regarding "Amateur Frequencies". How come our commercial interests for such a small population want our little spectrum when overseas, with their teeming millions, are prepared to live and let live on the Amateur bands.

Brian 4ZBW has left for Darwin and the 50 Mc. boys are waiting for his signal to break through. John 4DD (Donald Duck) really wrapped up in the s.s.b. and has great hopes for the new tx. Colin and Vern from the Goldfields are still putting a signal on 144 Mc. through to Townsville, and Ken 4ZAK is very happy with this band.

Eric 4EL waiting for the day when he leaves Clevedon, the old home of the National station 4QN, and takes up his residence in town. You will be sorry when you hear the QRM! Joe 4JH hopes to make that t.v. ticket in December. Our wishes for good luck. Alan 4BE, Ted 4EJ, and Len 4GD hardly heard on the band. Apparently no DX coming in of an evening. Bill 4ZBE still managing a couple of dozen QSOs with JA land on 50 Mc. each month and would like VKs to look in the Townsville direction. It appears that the band does not fade altogether in the winter, just that previously it was thought no good in the winter time with no activity. The local Met. Section say openings will occur when high pressure over the south-east corner and low pressure over the Kimberleys. The local boys are studying the weather maps to hear the VK3s and VK5s.

No news to hand from Bazil 4ZW of the doings on 7 Mc. band. It fades for short haul contacts now, but can hear W, LU, JA, etc., on phone and c.w. I even heard a CX on phone on this band.

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SOUTH AUSTRALIA

The ever popular buy and sell (tender) night was once again its usual self at the last monthly get-together, when Warwick 5PS and Norm gave their collective talents to the programme. In fact they must have brought along more than their usual quota of talent, for in spite of a good volume of business the evening concluded earlier than usual. Not that that made the break-up any earlier, no Sir, the usual chatter concluded the evening, a deal of it kerbside, but none-the-less enjoyable.

Your new system boys should see quite a roll-up at the next tender night, so start putting it aside in readiness fellows.

A recent circular from Secretary John gives details of some disposal equipment to be allotted to members interested. It is understood this is a forerunner of similar disposals, you will hear more of this as we go along. When you get a notice inviting enquiries, and you want some of the gear offering, fill out the form and send it back smartly, so you won't get left out. No reply from you indicates no interest, so don't growl if you miss out due to your own fault.

By the time you read this you will be accustomed to the new time of the Sunday session, i.e. 9.0 instead of 10.0 as before, which change was made to fit into the use of 7146 kc. by other Divisions. The new call-back frequency of 7125 kc. is also the new one, and being nominated for the purpose, should be kept clear as from say 10.15 a.m. each Sunday until the call-back is over. The country members make use of this, so keeping QRM away from there is a courtesy to them anyway.

W.I.C.E.N. activity now down to gear maintenance, which is of course important enough in itself, and to Roll Call on alternate Sunday nights on 3585 kc. Members please keep your gear in its best usable condition and attend these roll-calls. Other people than ourselves hear these, and it behoves all members to display their efficiency on the air, as well as maintain a signal worthy of inclusion in any emergency net.

Tubby 5NO has gone to U.K. on a six months' tour of duty, where he will be operating with the call sign of G3JUJ, so keep your DX ears clear for that call; he will be pleased to maintain contact with us whilst there. His son, Geoff, is to face the examiner next month to see if he can keep the "home fires" burning, hope you make it fellow, and give the O.M. a call to announce your entry to the hobby.

By the way, as learned in the art as Tubby is, he apparently does not know about DX before dishes, for he was heard recently to close a contact "to get back to the dishes". Shame on you Tubby, it's a shocking example for us younger (!!) members.

Arch 5XK heard in QSO with Luke 5LL with a really smart signal—a new rig Lance? It sounded A1 here. Heard from a little bird that Reg 5QR, tired of totalling up countries on c.w., was to turn his interest to s.s.b. with a phasing rig a-la-W2EWL; must have been right because most of the DX I call comes back to 5QR, with good signal reports, another convert. Who will be the next?

Les 5AX getting all excited as he sees Trust trucks enter his street and men examine poles and insulators, looks like some action on that bad noisé problem; don't kid yourself 5UA for the noise at the University is not to be compared with that in King St., Gawler. If anyone has a patent noise limiter to end noise limiters and wants to try it out, guess where? King St., Gawler, of course.

Ron 5FY at Elizabeth continues to bowl them over on 40 and 15 mx with his No. 19 set using 12w., and takes his place on Sundays with the gang. Quite a few new calls, for here anyway, coming up on the callback these days. Don 5KD, Gilbert 5GX, to name a couple; join in boys, we like to hear you, don't just listen, put your spoke in (5PS need not butt in—we know about him—or do we?).

Talking of Pansy, he came to light with a suggestion developed from "CQ" on a Q5er Mark II. that surely must be a winner. The Technical Committee though so much of it that special sheets with all the information has been sent around. Amazing (a) that he recognised a good thing; (b) that he made it up; (c) that he gets "CQ"; (d) that he got it to work. My respect for him has gone up a peg and in future will even ask him questions involving a possible technical answer.

Joe 5JT is now at the Alice; what about some 6 mx gear Joe? You would be surprised how many will QSO you if you did, and think of the lovely cards. As Joe never wastes

OBITUARY

J. K. TWYCROSS, VK6JT

One of the pioneers of Aviation Radio in Australia, born in Victoria, educated in Perth, and saw Service with the R.A.N. in World War I.

Joined D.C.A. in 1938, and retired in 1956. In 1944 was made supervisor of Airways Operations in W.A. and later became Communications Supervisor.

VK6JT was a keen enthusiast and in later years confined his hobby to 144 Mc. Well liked by all, Jim will be missed.

Sympathy is extended to his wife, son and daughter.

words in a QSO, he would be able to make many contacts on even a short opening. Give it some thought.

Carrier controlled modulation seems to be catching on these days; two good examples heard recently being Gilbert 5GX and Dave 5DS, with Dave perhaps "best dressed". You must do that promised article Dave, the Tech. Ed. is all poised awaiting your effort.

Roy 5DA a bit busy these days house-painting; Leith 5LG heard at great strength again; Bill 5HR not too far behind, either; Brian 5EM most consistent (no patients 10.0 a.m. Sundays please—sorry, 9.0 a.m. now); Burnie 5WC still to be heard but not yet in new shack; the Club outfit still operates from his home QTH.

G3IGB on the Orontes for VK5, so a new voice for VK5 soon, anyway welcome to VK5 and hope you get settled in and on the air quickly. Reg 5RR and Bill 5HR now qualify for R.C.C. having held a d.s.b. contact for over 1 hour.

Ron 5AP now resident in the metropolitan area, attended his first meeting at last month's Buy and Sell. Good to see you Ron, and hope you enjoyed meeting the gang.

Wally 5DF has really gone all Pansie. Yes, Sir, he has revamped his gear into a cocktail cabinet-like affair (lounge room too, if you please!) in walnut veneer and clear Forminex, hopes to get all in order prior to R.D. Contest. What with redecorating the rig and the whole room has kept him off the air, but no doubt he will make up for that.

George 5GA, well, but very busy; Pat 5LT very busy on 20 mx and still finds a rare one, how many now Pat? George 5KJ back from leave and should be on 40 on c.w. by this. Norm 5YM not heard for some time, too busy with the woollies, Norm?

Had a visit from Bram 5AB recently and pleased to learn of activities from down that way. All appears to be well, contacts a-plenty, and conveyed to him a way to fix a dipole for 40 and 80, so let's hear you Bram.

Gordon 5XU, that Third Method type, has announced a clean-up of his bench which is now down to the bottom layer. Surprising what he located in the clean up too, so if any of you loaned him anything during the last 10 years (last date of bench clean up) now is the time to apply for return of such loan. Don't leave it too long or the articles may get covered once again.

Tom 5TL has a new piece of gear, no, not his new tx, that sounds fine, but an antenna relay that according to him operates but won't work!! Want an explanation of that someday, anyway he has a new way of warming himself that beats the frosts, that is, to light a stick and wave it around himself. If the fire on it doesn't warm him the expended energy will.

Les 5UX at Hawker reported may be on the air in a couple of years.!! What's the hurry Les? Len 5OB in company with 2AVS and a couple of Gs heard from Edinburgh Airfield; Keith 5ZY making his 5 x 9 signal fit into the pattern well, with Bob 5BG his usual self.

Well, fellows, this is the last time the notes will come from this QTH, for due to many factors can no longer fit the task in to give a complete coverage. It has been an enjoyable job during the past few years, and have always tried to cover as many of you as possible and be as accurate as the news sources would provide.

Will hear you on the bands from time to time, but perhaps not as often. Best of luck to you all and to my successor, whoever he may be.—73, Comps 5EF.

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TASMANIA

Now that Federal Executive has approved the appointment to the Federal Contest Committee of five members from the South, those who constitute that committee are spending a great amount of time in becoming familiar with the duties expected from such committeemen, and in preparing for the R.D. Contest this month and subsequent contests. Remember, chaps, an all-out effort in the R.D. Contest this year. Submit a log, even if you have only the minimum of five contacts. Not only will the points help our Division, but also your log will improve the numerator in the fraction which is so important to us and which could be the feature to bring us success.

At the July Divisional meeting, a most interesting lecture on single sideband was delivered by Len 7LE. So convincing was the address that more than one hardened c.w. man was afterwards heard to admit that there was perhaps some merit in that form of phone.

Eavesdropping on the bands this past month, I heard Bill 7FY being mobile marine with a 128 set on 80 mx off the south-west coast of the State during the course of leave. Hugh 7DS showed what a good fist he has during a brief appearance on 80 mx. I also heard Bill 7TE and Harry 7BR briefly on 40 mx. Reg 7ZAO has a kitten-powered tx operative now on 2 mx. Ken 7KA is working toward suppressing one of the sidebands of his double sideband suppressed carrier rig.

This Division is now conducting slow morse sessions at 1915 hours on 3515 kc. on Monday, Wednesday, Thursday, Friday and Saturday of each week with a view to helping prospective Amateurs and limited licensees gain their full licenses. We would be very grateful for any reports on these transmissions.

Jack 7JB is virtually off the air at present, due to power line noise from a 22kv. line immediately at his front door. Only the strongest signals are readable. If something is not done about it soon Jack, you will have to change your QTH. Charlie 7KS is now active on 80 mx, having extended his antenna tuning unit to cover that band. Charlie is also in the course of building a new rx for himself.

Some of the southern members spent a recent Saturday painting the greater part of the house for Athol 7AJ, who has been confined to bed for many months now. We all hope to hear you on the air with that excellent little portable, Athol. By the time this goes to print, weather permitting, the rest of the painting should be completed.

We all regret that George 7GR has sold the bits and pieces of his tx. On the other hand, we take comfort in his assurance that in the not so distant future he will be back on the air again and, we hope, as active as he was ten years ago.

NORTH WESTERN ZONE

Well chaps here we are once again after missing out last month. Please accept my apologies but unavoidable.

Our bi-monthly lecture night was held on July 6 at the usual meeting place, about a score of interested parties were present and we were treated to an interesting talk on the Royal Flying Doctor Service as it is operated throughout the inland outback of Australia, by our President, Lee 7KC, who was at one time connected with the organisation in Western Australia.

Supper was once again served and many hands made quick work of cleaning up afterwards. George 7XL officiated as auctioneer and a vast quantity of the usual valuable and scarce items of "junk" were readily disposed of, resulting in a satisfactory addition to zone funds. I fear it was well after midnight by the time all "business" was completed and the usual "natter" session was called off to a later date. If nothing else is achieved, at least notes and relevant experiences both on and off the air are exchanged during these alternate meeting nights.

The Ulverstone High School is holding an Education and Science Exhibition in August and the W.I.A. has been asked to place and man an exhibit. The organisation of such is in hand, but more of this at a later session.

A.O.C.P. classes under expert instruction from Dennis 7DR are progressing very satisfactorily at Ulverstone and I think quite a number now have very high hopes that they will be "on the air" before too many more months go by—best of luck.

W.I.C.E.N. nets now include a phone section so we are hoping to get a lot more chaps interested in such emergency practice networks.

Hope everyone bagged themselves a VK9 during July, also a few more ZLs also. I sincerely trust everyone has their gear tuned up and in good going order ready for the R.D. Contest on the 15th of this month. I wonder who will win it this year—the VK6s sound pretty sure of themselves once again, but we shall see, so put your best foot forward VK7s and maybe everyone will get a surprise.

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WANTED: For AR7 Receiver, one pair of "H Type" Tuning Gangs in reasonable condition. W. Menlove, 105 Kangaroo Rd., Oakleigh, Vic.

WANTED: Handbook No. 22 Set and "Amateur Radio" for January 1955. Don Robinson, C/o. Telephone Exchange, Narrandera, N.S.W.

WANTED: Instruction Handbook and Power Supply for 122. A. G. Swinton, 150 Avoca Rd., Avoca Beach, N.S.W.

WANTED: Official Handbook for 122 Set. Price, etc., to R. A. Watson, Panmure, Vic.

WANTED: 3.5 Mc. Crystal suitable for use as Band-set Oscillator. State Price to M. A. Jones, 6 Powell St., Mt. Gambier, S.A.

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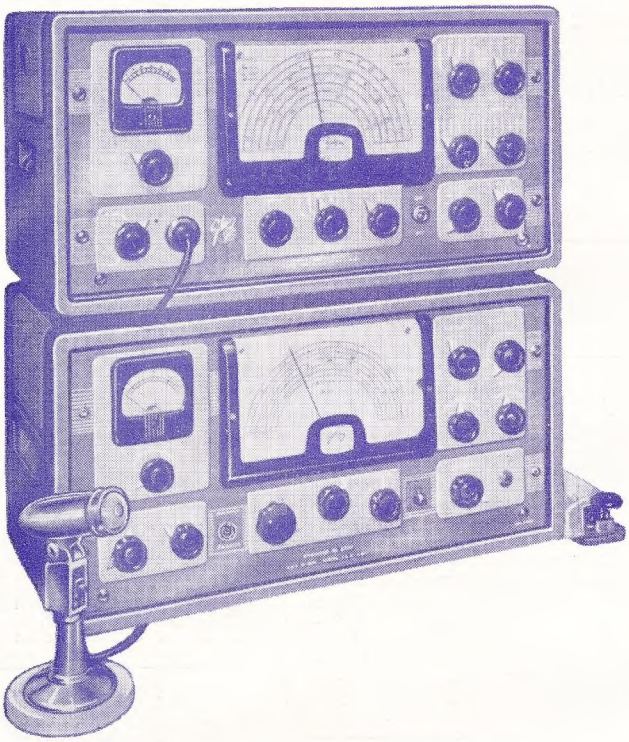

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